The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LVIII, No. 9 CHICAGO, ILLINOIS MARCH 2, 1912

THE COLON BACILLUS, A REGULATOR OF POPULATION *

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When certain species of animals, like rabbits and lemmings, increase beyond the limit desired by Nature in any locality, epidemic diseases suddenly appear and stop this disturbance of natural balance.

In the earlier days of history the human species was subjected to similar epidemics. It seems to have been Nature's plan to allow the medical profession to take charge of this subject up to a certain point, but there are limitations which we may not be allowed to pass, because there appears to be a plan to destroy by poison various species of plants and animals which have arrived at stages of increase or of development beyond Nature's liking.

Concerning the stage of development which is to be allowed for man, we can no more anticipate the limit than we can state the reason for the presence of so many thousands of suns in space. We may simply observe the fact that an oak tree is not allowed to grow beyond a certain height, and a rose is not allowed to progress beyond limited stages of development, after which its stamens are transformed into beautiful petals, and the rose then loses its power of reproduction and falls a ready prey to enemies.

Man and domesticated animals carried to the higher stages of development begin shortly to show stigmata of decadence indicating that Nature has been setting her limit.

At the present time there are few individuals among us who do not show some of the stigmata of decadence, even though no more marked than in irregular development of teeth, or abnormal shape of toes. Still more striking stigmata are familiar to all of us, as seen in every day practice in a fair proportion of all of the individuals in a community.

We may assume that glandular structures of the body, engaged in manufacturing protective elements against bacteria, present decadent features, quite as well marked, though not as observable, as external anatomic defects. Such decadence of manufacturing organs would mean derangement in function with a lessening of their protective efficiency. The higher our development, the sooner decadence begins in any one family or group of individuals. Vulnerability to bacteria of various kinds increases. In other words, a poisoning process takes place in plants and in animals when decadence begins. The toxins of bacteria are employed by Nature for killing off plants and animals when limitations of development, quite as well as when limitations of increase, have been reached.

Bacteria which formerly caused disastrous epidemics, attacking practically all types of individuals, are under excellent control at the present time, through the resources of preventive medicine. Endemics, like tuberculosis, are controlled to the point where only those individuals who have passed the higher stages of development remain very vulnerable.

There are many bacteria, insidious in their methods of attack, still conducting Nature's plan of poisoning off excess of population, and attacking most freely individuals who carry heels of Achilles after passing the higher stages of development in the family.

It is becoming apparent that the colon bacillus group of bacteria stands among the most active malefactors (malefactors from our egoistic point of view, benefactors from Nature's standpoint), and this group will perhaps be found to stand next to the tubercle bacillus group in the proportion of deaths which it causes in a community. It has even been found to extend beyond animal prey in causing destruction of terminal buds of cocoanut palms.

The reason that the activities of this group of bacteria have not been more quickly recognized is in general the reason that the flying-machine was not invented earlier; and in special, the reason is that methods of search for the colon bacillus are of recent development, and not yet extended to cover most of the field. This is in part due to the method of work which Nature allows us up to the present time. Nature has not even allowed the laboratory clinician to make routine search for the colon bacillus in urine as yet.

At the university we are trained in science to make use of all available data before arriving at a conclusion. Later in life we develop the art of the practice of medicine, and Nature sets us at grouping data about theories in a harmonious way to fit our art. This natural antagonism between science and art explains the regulation of progress, which must not be too rapid, according to Nature's plan.

In abdominal surgery we all recognize the destructive activity of the colon bacillus when it leads to gangrene of the appendix, but how often do we follow the bacillus from an actively proliferating colony at the appendix, and note distant effects of toxins or of separate colonies which occur synchronously with the development of the colony which is most in evidence?

How often do we recognize the relation of colon bacilli, for instance, to infections in the vicinity of the pylorus and duodenum?

At post-mortem examinations we find adhesions extremely abundant in the vicinity of the pylorus and duodenum in cases in which the patients have complained

* Read at the Twenty-Fourth Annual Session of the Southern Surgical and Gynecological Association, Washington, D. C., Dec. 12, 1911.

during life of nothing more perhaps than dyspepsia. This dyspepsia in itself has not been fatal to the individual, but has been a factor in lessening the resistance of the individual to other infections. The colon bacillus, however, was the original malefactor, from my present point of view. Such adhesions are mostly overlooked by the medical profession as yet. In dyspepsia the *x*-ray is just rising over the horizon, but we are already making gastric diagnoses with the *x*-ray which takes a picture of the stomach filled with bismuth solution, showing interference with motility of the stomach, abnormal peristalsis, or hepatofixation of the stomach, due to adhesions which have apparently resulted from insidious colon bacillus action. To-day we depend as much on the *x*-ray for dyspepsia diagnosis as we do for broken bone diagnosis.

Examination of adhesion tissue from the attic of the abdomen by Dr. B. B. Stroud, who is making observations for me, shows the presence of the colon bacillus in such tissue, just as others found it encapsuled in gallstones.

It is only recently, however, that we have learned of the activities of the colon bacillus in the gall-bladder.

It seems to me a tenable hypothesis that the colon bacillus is responsible for a large proportion of our cases of ulcer of the stomach and duodenum, such ulcers to my mind simply representing symptoms, like acne of the face. In 1895, I described proliferating endarteritis in the blood-vessels of the appendix. If the colon bacillus causes similar endarteritis of the terminal vessels of the stomach, it would explain why anemic distribution areas of these plugged vessels are exposed to bacterial and digestive destructive attack, resulting in symptoms which become graphic as ulcer.

We have recently noted the fact that the colon bacillus is an agent in the production of pancreatitis, but only the acute forms of pancreatitis producing death quickly have as yet attracted our attention acutely. How about the very large group of cases of interstitial pancreatitis not yet noted by the clinician, but which may often result in diabetes mellitus from squeezing out of the islands of Langerhans by hyperplastic connective tissue? Diabetes mellitus, then, like ulcer of the stomach, would belong in classification among the symptoms of poisoning by the colon bacillus, until we had disproved the point in any given case.

If the colon bacillus is known to cause interstitial panceatitis, may it not be a salient factor in the development of those cases of hepatic cirrhosis which are known to be of toxic origin, from the influence of intestinal bacteria?

If we already know about pancreatic cirrhosis from the influence of the colon bacillus, and assume that hepatic sclerosis represents a similar infection, should we not think next in order of arteriosclerosis, which causes much shortening of life, as belonging in the colon bacillus class of cases? In arteriosclerosis we have alteration of blood-vessels, including increase of connective tissue, and believed by some to be a result, secondarily at least, of toxic hypertension. A very small proportion of the cases of arteriosclerosis are caused by alcohol and syphilis, the great majority being perhaps secondary to saprophytic hypertension. We know that intestinal putrefaction is a forerunner in many cases of arteriosclerosis.

When the blood-circulatory system is being injured by colon bacillus toxins, we may also have neurasthenia, for these poisons attack the nerves as well as other structures, and neurasthenia is found chiefly in individuals of families who have passed the higher stages of development, and who are prone to intestinal putrefaction.

Indican in the urine is said to be the index of various toxins of intestinal origin, and we know that the colon bacillus is one of the most abundant bacteria which develop out of normal proportion in the bowel of patients who have lost part of their resistance, and whose urine contains indican.

A vicious circle is established when defective protective organs allow the colon bacillus to increase to a point where its toxins produce tissue-changes, these tissue-changes in themselves giving rise to still further disturbance of function of glands engaged in protection, nutrition and excretion.

If we are free to assume that the colon bacillus is a malefactor in arteriosclerosis, we may easily place this bacterium as ranking with the tubercle bacillus in limiting over-population by increasing the death-rate. The colon bacillus sometimes develops insidiously at various points, when any actively proliferating colony is at work at some one focus and making distant colonies. Thus we may have subphrenic colonies when the primary nest of active bacteria is as far away as in a diverticulum of the sigmoid flexure of the colon. These flagellated bacilli frequently spread over the peritoneum, causing acute peritonitis, when they escape from some focus of destructive activity.

Dr Charlton, of McGill University, has suggested that pernicious anemia may at times result from colon bacillus infection, but at the present time it seems to me perhaps better to recognize a colon bacillus anemia simulating pernicious anemia.

Malarial infection is simulated by the toxic impression that goes with some forms of intestinal putrefaction, and as the colon bacillus is the commoner saprophyte, it seems fair to assume that the sapremia is to be charged against a bacterium that is dominant at the time. In any event, it is evident where the burden of proof lies ready for the clinician.

Dr. H. G. Harris has found the colon bacillus abundant in the urine of a patient with infantile paralysis. We know that experimental injection of the colon bacillus into the circulation has resulted in special impression on the spinal cord, and that at least makes us pause for a moment to consider what sort of relation may exist between the colon bacillus and infantile paralysis. Perhaps the colon bacillus prepares the way for the special infection of infantile paralysis; perhaps the special infection of infantile paralysis prepares the way for terminal infection by the colon bacillus.

One of the largest groups of cases in which the influence of the colon bacillus is daily overlooked by clinicians of the world is in its relation to infections of the kidneys, and this is particularly regrettable because in no other field, perhaps, have we such good control of the movements of the colon bacillus.

Dr. William H. Thomson has shown that hexamethylenamin (urotropin) combined with benzoate of soda, in the course of excretion from the kidneys, is directly destructive to the colon bacillus throughout the urinary tract. Some patients do not split up hexamethylenamin into the requisite by-products readily, but the addition of benzoate of soda seems to facilitate the process.

In many cases of infectious and contagious diseases, like scarlatina, measles, typhoid and diphtheria, the organism found in the urine is the colon bacillus. In several forms of acute gastro-intestinal disturbance, like

cholera morbus, particularly in elderly people, the kidneys may be so filled with colon bacilli that a fatal result is due to this complication, which could have been averted by recognition of the colon bacillus in the urine and application of the Thomson treatment. Persistent bacilluria may require in addition colonic flushing to reduce the primary toxic source.

We have less cause to fear the dangerous nephritis of scarlatina when we find the colon bacillus abundant in the urine, and recognize it as an agent hastening the patient toward death.

Sometimes in consultation physicians have advised against operation in cases of appendicitis because of the presence of albuminuria, but when they were shown the presence of the colon bacillus in the kidneys, they were not surprised at the rapidity with which albuminuria ceased after operation on the primary focus of infection.

Infection of the urinary tract occurs in several ways. We have ascending infection through the open portal of the urethra, descending infection through the mazes of the blood-stream, infection by contiguity when the bacilli make their way through tissue from a neighboring focus.

Concerning ascending infection through the open portal of the urethra, we shall often find the colon bacillus as the chief malefactor in many cases of chronic cystitis if we simply look for it, and I have found it in cases in which the clinical diagnosis was tuberculosis of the bladder, and a hopeless prognosis had been given. Yet the cystitis disappeared under the influence of hexamethylenamin before I had taken up the improved treatment of Thomson, with the addition of benzoate of soda.

Infection of ureters and the pelvis of the kidney is often due to the colon bacillus, and we may obtain this bacterium from any part of the urinary tract. Some obscure cases in which we suspect the presence of stone in the kidney, but cannot prove it by text-book resources, are really cases in which we will find the colon bacillus at work, if we look for it. This is true also of some kidney abscesses.

The colon bacillus ascends the open portal of the vagina, and is responsible for some of the leukorrheas of intractable character. I have found it chiefly in the ones in which the leukorrhea was secretory in character rather than purulent and particularly in neurasthenic young women.

This bacterium is sometimes the cause of oviduct infection, when resistance is suddenly lessened in a woman exposed to cold during the time of menstruation.

In other cases the colon bacillus insidiously escapes into the peritoneal cavity beyond the oviducts, without making particular demonstration en route, but attacks an ovary at a point of injury, like that caused by recent escape of an ovum, and gives rise to ovarian abscess. I suspect it to be the cause for some of the ovarian and tubal adhesions in cases giving no clear history of acute attack.

Incontinence of urine in children is sometimes due to the presence in the bladder of the colon bacillus, which has entered through the urethra, or has descended from the kidney. Highly acid urine caused by the colon bacillus accounts for the irritability of the bladder and the incontinence in this group of cases.

The same bacterium is undoubtedly a factor in limiting population when it goes into the vagina and causes such highly acid secretion that spermatozoa perish, unless we correct the hyperacidity with milk of magnesia or other resources.

The colon bacillus penetrating the diaphragm sometimes causes local pulmonary consolidation, and it has been found by Kemp as an abundant bacterium in double pneumonia and purulent bronchitis, and obtained in pure culture from the urine at the same time.

The effects of the colon bacillus are sometimes so remote that the influence of this bacterium is not suspected at all. In one case of chorioiditis in which the patient had become nearly blind, Dr. Kirkendall, of Ithaca, N. Y., recognizing the toxic character of the chorioiditis, sent the patient to Dr. Stockton of Buffalo, for consultation. Dr. Stockton believed that the toxin in the case might be from the colon bacillus, due to bowel disturbance caused by chronic inflammation of the appendix, and the patient was sent to me for operation. Removal of the appendix cured the patient of his chorioiditis.

Clinicians must form a habit of looking for the colon bacillus as systematically as they now make differential blood-count.

My view that the colon bacillus ranks along with the tubercle bacillus as an agent for preventing overpopulation and regulating the character of population, by means of poison, might have been given special attention by Darwin or Malthus, had they been in possession of our present data which open such an interesting new vista.

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THE PRESENT STATUS OF SALVARSAN THERAPY IN SYPHILIS*

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Since the introduction of salvarsan to the profession, in the early part of 1910, the use of this powerful specific in the treatment of syphilis has passed through several stages and its final position is not yet entirely fixed on account of the chronic nature of the disease. The purely experimental period, however, is practically over. Certain definite statements can now be made, and the lines for future development are fairly well laid down. The present status of the whole subject can best be appreciated by a brief review of its history, which is illustrated by personal experiences.

As a preliminary to the discussion of the treatment of syphilis, it is very desirable to decide, if possible, on some criterion of cure. Before the day of the Wassermann reaction the question of cure in a given case was somewhat problematical, as a number of cases which have received "classical" treatment still give positive reactions. But now that we have in the Wassermann reaction an index of the infection, and in salvarsan a remedy which helps cut short the length of treatment, I believe that it is feasible to adopt a criterion of cure which will hold good and within a reasonable period of time. Accordingly the following criterion has been tentatively adopted: one year without treatment, without symptoms and with several negative serum reactions. This standard depends largely on the observed fact that after the discontinuance of treatment, the great majority of relapses, clinically or serologically, occur within six months, and it is believed that but few untreated persons can harbor living spirochetes for a year without giving

* From the Bacteriologic Laboratory of the Army Medical School, Washington, D. C. Published with the permission of the Surgeon-General, U. S. Army.

some evidence of their presence, either in the way of symptoms or as a result of repeated examinations of the blood-serum. The "luetin" test, recently introduced by Noguchi,[1] may also prove of value, especially in tertiary cases, as an indication of cure.

These two conditions of cure—observation for one year and an abundance of reliable Wassermann reactions—are, of course, somewhat difficult to secure for various series of cases treated in different ways. Most syphilitics in hospitals belong to a floating class and have a way of failing to turn up when most needed, and private patients do not always serve for scientific purposes. In this respect the military service offers distinct advantages; some cases may be lost by transfer, discharge or desertion, but many can be closely followed for a long time and under definite conditions. In regard to serum reactions, which are so essential for conclusive results, I am greatly indebted to Captain Charles F. Craig, of the Army Medical Corps, for unlimited assistance. My clinical experience with salvarsan dates from May, 1910, when Dr. John A. Fordyce and I, under direction of Dr. Flexner of the Rockefeller Institute, began the treatment of the first series of cases in this country. Since that time I have used the drug as follows: Eighty-eight intramuscular injections in eighty-five cases; eleven subcutaneous injections in eleven cases; eighty-two intravenous injections in forty-seven cases; a total of 181 injections in 143 cases, and each case has been followed clinically and serologically as closely as possible.

Keeping in mind the criterion mentioned above, it can readily be seen that only within recent months can positive statements be made of the cure of syphilis with salvarsan. The whole history of the practical use of salvarsan covers less than two years, and the first doses were admittedly small. The intravenous method in general use is only about one year old, and various combination methods are less than that.

THE HISTORY OF SALVARSAN

As is well known, after the experimental foundation for the use of salvarsan had been thoroughly established in animals,[2] and preliminary applications had been made to man, Ehrlich issued the drug to a number of physicians in different parts of the world for trial in human syphilis. Thus was inaugurated the third practical advance in the modern campaign against syphilis as an infectious disease, and this advance had as its starting point the previous discoveries in regard to etiology and serum reactions. From the first, Ehrlich assumed every responsibility and no better evidence of his genius is afforded than the way in which he planned and guided his attack on the immense problem involved in the treatment of syphilis. In his first circular of instructions Ehrlich advised the intramuscular injection of the alkaline solution in a dose of about 0.3 gm. in a series of cases. The program then called for a gradual rise in the dose in other series until a sterilizing dose was reached. Each case was to be treated but once—partly as a result of experiments on animals and partly as it was feared that "arsenic-fast" organisms might be developed by repeated small doses. The immediate results of this program were brilliant. Almost every observer, including Dr. Fordyce and myself,[3] reported remarkable clinical and serologic results. The only big question which remained was in regard to the permanency of the results. Such relapses as occurred were attributed to too small doses, and other series were started with larger doses, 0.5 to 0.8 gm. There was an admitted drawback, however, in the painfulness of the injection, which persisted in spite of local anesthetics and modifications in alkalinity and in the site of the injection.

About this time, July, 1910, Wechselmann brought out his method — the subcutaneous injection of the neutral suspension as a painless substitute for the alkaline method. I happened to be in the Frankfort laboratory when Wechselmann's letter describing his method arrived, and I well remember the pleased expressions of *kein Schmerz* which followed the first use of his method. It was thought that the drawback involved in the alkaline method was removed, and the original program of increasing the dose to the sterilizing point was taken up with renewed vigor by every one supplied with the drug. But Wechselmann's method was doomed to almost complete failure; the injection was relatively painless, but in the majority of cases the injected mass failed to be completely absorbed, and resulted in lasting encystments and necrosis of the tissues, and of course the clinical action of the preparation was considerably diminished. Unfortunately, the instructions issued with the first lot of salvarsan put on the market recommended Wechselmann's method, and naturally the results were disappointing; but the method was soon entirely given up, and the only net result was the use of partial emulsions in the muscle.

As far as the original plan was concerned, the Wechselmann episode was a fiasco, and there was a general return to the intramuscular method with a feeling that the results justified the discomfort. Then, as relapses began to occur even with fairly large doses, the intramuscular injection was preceded by an intravenous injection. Meanwhile, one other modification was being tried — the intramuscular injection of the original powder rubbed up in oil. This method is less painful than the alkaline method, but the substance is also in an undissolved form, and while it has been extensively used by a few workers, it did not materially alter the program.

About this time, at the end of 1910, Ehrlich made a complete change of base and this was due to several causes. In the first place, aside from the painfulness of the alkaline method, there were some cases of extensive necrosis and encystment, and there was some danger of an explosive effect of the large amount of arsenic if the compound should be decomposed in the tissues. In the second place, in spite of fairly large doses, relapses began to be reported. In the third place, it was found in Ehrlich's laboratory that the spirochetes, unlike the trypanosomes, do not become resistant to repeated doses of arsenic preparations. I was able to confirm this finding.[4] Finally, the intravenous method, which had been used from the first by Iversen in relapsing fever, seemed to meet all the conditions best, and Ehrlich accordingly advised that this method be used, in repeated small doses, and in combination, if necessary, with mercury.

To any one who had followed the development of the subject this change of base was a logical move, and one which showed that the object of the attack was to destroy the spirochetes in the surest way, rather than to exploit any one line of treatment. But a good deal of confusion arose among those who were not familiar with the devel-

1. Noguchi: Jour. Exper. Med., 1911, xiv, 557.
2. Ehrlich and Hata: Die experimentelle Chemotherapie der Spirillosen, 1910.
3. Nichols and Fordyce: The Journal A. M. A., Oct. 1, 1910, p. 1171.
4. Nichols: Jour. Exper. Med., 1911, xiv, 201.

opment of the subject. On the one hand, single intravenous injections were given with the hope of cure—a procedure which Ehrlich never sanctioned for a moment. It is not easy to give the exact clinical equivalent of one good-sized intramuscular injection in terms of intravenous injections, but it is certainly not less than two, with a short interval. On the other hand, the old-line syphilographers took the combination treatment as an admission of failure of Ehrlich's propaganda, an assumption which will be referred to later and which, in my opinion, is emphatically a mistaken one. The only real confusion resulted from the attempt to follow different series of cases for a sufficient time and to correlate the results of different series of cases treated with different doses intramuscularly, subcutaneously, intravenously or in combination with mercury; and this difficulty is inherent in the chronic nature of the disease. Fortunately, at least for the clarity of the subject, it has become evident that much of the original program was inadequate for permanent cure; but it is also true that certain kinds of cases do yield to the treatment as originally laid down, and that in the great majority of cases the combination method offers the best prospect.

THERAPIA STERILISANS MAGNA

The idea of curing syphilis by a single treatment instead of with treatments running over two or three years was a daring conception, but one which was theoretically sound when dealing with a powerful spirillocide like salvarsan. There is no room for any doubt that salvarsan is a specific for the spirochetes of syphilis. Whether or not it is a specific for the disease depends, to my mind, simply on the question whether or not the spirochetes are accessible to the drug. If they are accessible, they will be killed and a cure will result; if some few are buried in the tissues away from the direct influence of the circulation, they will survive and reproduce and the patient will relapse. Some workers, of course, believe in a resistant stage of the spirochetes, such as Balfour's spore granules,[5] but no actual proof of the spore-like nature of these bodies has been given and it seems to me that everything points in the opposite direction. Spirochetes, as such, have been found in practically every lesion of syphilis and the study of cultures does not suggest any cycle of development other than simple division. The best evidence in favor of this view, however, is found in the experimental treatment of rabbits; if a very small dose is used, it has no effect except to immobilize certain of the spirochetes; if a larger dose is used the spirochetes can be killed to such an extent that the lesion disappears but reappears in a few weeks; if a still larger dose is used all the spirochetes are killed and the lesion does not reappear.

The correctness of this line of reasoning is also shown, I believe, by the reports of radical cure following a single treatment. The cases concerned have been early cases in which the spirochetes have not thoroughly established themselves in the tissues, or later cases in which either by treatment with mercury or by the natural curative processes of the body the spirochetes have been left more exposed or segregated in certain limited areas. In my own experience *therapia sterilisans magna* has been realized only in such cases as shown in Table 1.

In the first case, which was one of three chancres of the lip and a beginning eruption, the patient was cured by a single intramuscular injection of 0.3 gm. This result must be considered as exceptional in view of further experience, but it shows the possibilities of the drug when the conditions are favorable. The second case is of interest as a case of reinfection with a typical chancre in a new location after a year of negative reactions. There is no better proof that the patient was entirely cured than the very fact of reinfection, as we now know that there is no permanent immunity in syphilis. Some 119 cases of this kind have been collected by John.[6] The third, fourth and fifth cases are a good deal alike in that the patients had had treatment with mercury, but still showed a positive reaction and symptoms, and were permanently cured by single injections. The amount of mercury in any given case was not enough to produce a cure, but may have aided somewhat in the final outcome, as will be mentioned later. The last case is the most remarkable of the six. This was a woman who had been infected by her husband and had a syphilitic child three years before treatment. In August, 1910, she had a gumma of the lip which yielded to inunctions of mercury; but the cachexia, which had reduced her weight to 78 pounds, and terrific headache and backache, together with a double plus reaction, remained in spite of inunctions and injections. In October, 1910, during the Wechselmann era, she was given 0.4 gm. salvarsan subcutaneously. For forty-eight hours her pains increased, but then ceased and never returned. The injected mass became encysted and finally ulcerated, but the patient improved steadily and her condition after a year, with clear red color, a gain of 20 pounds, and perfect health, in spite of an incomplete absorption of the drug, can be ascribed only to what Ehrlich calls the preeminent qualities of the preparation.

It is only fair to say that these cases are but a small proportion of the total number, and that in fully 85 per cent. of miscellaneous cases a relapse occurred when the patients were treated with a single average-sized dose, as is illustrated in Table 2. But the point at issue is the possibility of cure with a single dose, and this has certainly been realized according to the original program in certain cases. If the dose is raised to 1 gm. the percentage of cures can also be raised, but the percentage of relapses is still very high, and, in addition, the painfulness and possible danger of the method are strong arguments against it. As practically all observers agree in these results, we may conclude that *therapia sterilisans magna* can be realized, with the intramuscular method, in the primary stage; that in the secondary and tertiary stages it is possible but not probable; and that the principle remains as an ideal toward which to work.

REPEATED INJECTIONS

As soon as it was settled that only a small percentage of patients could be permanently cured by a single intramuscular injection a great variety of repeated doses were started and a good deal of confusion resulted until fresh series of cases could be treated according to some definite plan. Repeated intramuscular injections were given and a certain number of cures can be cited for this method, but a number of patients, including some of my own, objected strenuously to a second or third intramuscular injection. Then, as is noted above, an intravenous injection was followed by an intramuscular; I have one case of this kind which has been negative for eleven months, but I have several other patients who relapsed under the same treatment.

5. O'Farrell and Balfour: Jour. Roy. Army Med. Corps, 1911, xvii, 225.

6. Klausner: München. med. Wchnschr., 1911, lviii, 2335.

In February, 1911, following Ehrlich's recommendation, I adopted the intravenous injection as a routine measure. The intramuscular method was hard on the patient; it was insufficient for permanent cure in the majority of cases; it could not readily be repeated; and it had a possible danger, although I had no personal experience with any bad effects. The question then arose, How many intravenous injections of a given dose are necessary for a given case? As our first experience of the clinical effect of salvarsan was with the intramuscular injection, the question can be restated, How many intravenous injections equal one intramuscular in a given stage of the disease? My own experience, as stated above, is that at least two intravenous injections, with a week's interval, are necessary to equal the effect of one intramuscular injection in an average case in the secondary period. Of course, cases of syphilis vary—in the extent of infection—from almost nothing to infinity and the treatment must correspond. For example, I have under observation a patient who, August 20, noticed a small sore; August 23 spirochetes were found, and August 25, 0.6 gm. salvarsan was given intravenously. The reactions were August 23 —, September 14 + —, October 13 + —, November 29 —; no secondaries. It is too early to say positively that this patient is cured, but in all probability he is. On the other hand, in a case of secondary syphilis with a mucous patch on the uvula and a positive reaction, I have seen the reaction disappear and the lesion heal after one intravenous injection only to reappear in three weeks. This relapse would undoubtedly have been longer delayed under an intramuscular injection. Everything goes to show that the intramuscular injection, as Cabot[7] says, has the most profound effect on the disease, but the intravenous method on general grounds has come to be the method of choice and practice must conform to it. Realizing that, if one intramuscular injection equals two intravenous injections, it would be necessary to give more than two intravenous injections in most cases, I started a series of six untreated patients in the secondary stage with two intravenous injections a week apart, with a repetition of the treatment after a month. The immediate effects were, of course, excellent. In regard to permanent effects, two cases have remained negative for eight months, two patients have relapsed and two have been lost track of.

This form of experimenting on different series of cases with different doses and methods of administration, was, of course, necessary for knowledge, and under ordinary circumstances would have been continued until we could say, approximately, just how many injections of a given dose were necessary to cure a given case. Of course, some writers, chiefly those who have had little experience with the drug, claim that salvarsan cannot really cure syphilis and that the game of "hide and seek" with the spirochetes would go on indefinitely. After what has been said it is not necessary to discuss such a statement except to repeat that the condition of cure is simply contact of salvarsan with the invading organism, and that this contact can be secured by using enough of the disinfectant. What, then, interfered with carrying out further experiments along this line? Chiefly, the unexpected development of neuro-recidives, or relapses affecting the nervous system. Of course the expense involved and a natural hesitation about giving an unlimited number of intravenous injections had some weight, but the really deciding factor was the peculiarity of some of the relapses. Ordinarily, little harm is done by giving a certain treatment and withholding anything further. In many cases the serum reaction returns as an indication for further treatment before symptoms appear, and when symptoms do appear they are not usually of a serious character. In some early cases, however, the relapses after salvarsan treatment have unexpectedly been explosive in character, especially those affecting the nervous system.

What is the meaning of these symptoms? Assuming that they are not toxic in origin, as I believe we are justified in doing,[8] they are very important as giving an insight into what I believe is a radical difference between the action of salvarsan and of mercury. When a patient is treated with mercury the spirochetes are not killed *en masse;* some are killed, but a great number are simply repressed and the natural defenses of the body are gradually brought to bear on the infection, and as a result the patient goes more or less definitely through the various stages of the disease much in the way an untreated patient does. Even if the patient relapses under mercury he is somewhat advanced in the disease and the mercury which he has had is an asset which can be added to by further treatment. With salvarsan I believe the case is entirely different. The great bulk of spirochetes are killed at one blow and if any remain they are too few to stimulate the resistance of the body. They begin to multiply, however, after a time, and suddenly flood the tissues again, and, if the brunt of the attack falls on the nervous system, serious consequences may ensue, such as convulsions, deafness, blindness, and so forth. The patient is at least no better off than he was at the start, and the treatment must begin at the beginning, because the body reactions have not progressed as usual. In other words, salvarsan has entirely upset the ordinary course of syphilis and has introduced entirely new factors in the matter of serious relapses.[9]

If salvarsan were the only remedy for syphilis, certain of these cases would be inevitable, but, as we have in mercury a drug which years have shown to be effective against syphilis in time, Ehrlich advised that mercury be used as an adjunct to salvarsan in order to reduce to a minimum the relapses, especially those affecting the nervous system. There has been an attempt in some quarters to make a partisan matter of the use of salvarsan versus mercury or vice versa, but no such attitude can long be maintained. The interests of science and of the patient are identical in the long run and both demand that the best means of combating the infection be used irrespective of personal prejudice. As I have tried to show, I believe that salvarsan can cure syphilis without other medication, if given according to the indications. If the specific nature of a sore can be determined within a few days of its appearance, and before the serum reaction appears, one intravenous administration may stop the infection. A week or two later, two may be sufficient. Still later, when the serum reaction is present and when the secondaries are full-blown, three or four injections will cure some cases and so on through the disease, but at each step relapses may occur and may damage the patient. Hence it is in the interest of the patient to be overtreated in many instances by the use of the combination method rather than to run the risk of a serious relapse under salvarsan

7. Cabot: Boston Med. and Surg. Jour., 1911, clxv, 505.

8. Bernario: Ueber Neurorezidive, 1911.

9. Desneux and Dujardin: München. med. Wchnschr., 1911, lviii, 2111.

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TABLE 1.—SIX CASES OF SYPHILIS IN WHICH THERAPIA STERILISANS MAGNA WAS REALIZED AFTER THE ADMINISTRATION OF SALVARSAN*

Case	Clinical Condition	Duration of Infection	Previous Treatment	Serum	Salvarsan		Month†											Remarks
					Date	Quantity (gm.)	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth	Eleventh	Twelfth	
1	Chancres; eruption.	2 mos.	None	++	6/2/10	0.3	6/30 +	..	..	..	—	..	..	..	—	..	..	—	No symptoms.
2	Chancre; bubo.....	1 mo.	None	+	11/3/10	0.5	11/16 —	—	..	—	—	—	..	—	..	..	—	+	Reinfection.
3	Mucous patches....	5 mos.	Inunction of Hg two mos.	++	11/8/10	0.5	11/15 —	..	..	—	..	..	—	..	..	—	—	—	Gain of 50 pounds; no symptoms.
4	Mucous patches ...	5 mos.	Hg by mouth two months.	++	11/8/10	0.5	11/15 —	..	..	—	..	..	—	..	..	—	—	—	No symptoms.
5	Mucous patches; papular eruption.	5 mos.	Ten injections $HgCl_2$.....	+	11/28/10	0.5	12/5 +—	—	—	..	..	..	..	—	..	..	..	—	Gain of 10 pounds; no symptoms.
6	Cephalalgia	4 yrs.	Inunctions and injections, Hg and KI, two months.	++	10/22/10	0.4	11/5 —	..	—	—	..	—	..	—	—	..	..	—	Gain of 15 pounds; no symptoms.

* The intramuscular method of injection was used in all cases except Case 6, in which the subcutaneous was employed.

† In this and the following table, in these columns, the plus and minus signs signify results of the Wassermann test. The preceding figures refer to dates on which reaction first became negative.

TABLE 2.—SIX CASES OF SYPHILIS IN WHICH SINGLE AVERAGE-SIZED DOSES OF SALVARSAN WERE ADMINISTERED INTRAMUSCULARLY WITH RELAPSE IN EACH CASE

Case	Clinical Condition	Duration of Infection	Previous Treatment	Serum	Salvarsan		Month											Remarks
					Date	Quantity (gm.)	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth	Eleventh	Twelfth	
1	Mucous patches....	5 mos.	18 injections biniodid....	++	1/14/11	0.6	..	2/4 —	..	—	..	..	..	+	..	..	..	..	Symptoms; relapse within seven months.
2	Mucous patches....	1 yr.	Hg by mouth six months.	+—	2/14/11	0.6	2/21 —	—	—	+	..	..	..	..	..	..	..	..	Relapse within three months; no symptoms.
3	Mucous patches....	5 mos.	Hg by mouth one month.	++	11/8/10	0.5	..	12/8 —	..	—	..	+	..	..	..	..	..	..	Relapse within six months; symptoms.
4	Mucous patches....	5 mos.	Hg by mouth and sodium cacodylate.	+	11/16/10	0.5	..	12/19 —	—	—	+	..	..	..	..	..	..	..	Relapse within four months; symptoms.
5	Incipient tabes ...	7 yrs.	Hg by mouth three years.	++	12/5/10	0.5	12/19 —	—	—	..	—	..	..	..	..	+	..	..	Relapse within nine months; no symptoms.
6	Latent stage	1 yr.	Hg by mouth one year...	++	1/19/11	0.6	..	2/4 —	—	..	+	..	..	..	..	..	..	..	Relapse within four months; no symptoms.

alone. To be sure, serious relapses occur only in the early secondary stage and hence this argument against the use of salvarsan alone does not apply in the primary and tertiary stages and, in my opinion, further work with salvarsan alone should be done in these stages. But when the combination method is once established, there is a general tendency to use it all along the line.

THE COMBINATION METHOD

It is rather strange, at first thought, that the curative action of mercury on syphilis cannot be shown in animals more clearly than is possible. As is well known, the action of salvarsan can be clearly shown in the rabbit, and a single curative dose is at least ten times smaller than the fatal dose. As I have shown, however, the margin between a single curative dose of mercury and the fatal dose is very slight, and the question of "kill" or "cure" is largely a matter of chance.[4] This finding, however, can be readily correlated with clinical experience, because the best results with the use of mercury come from the intensive treatment, to the point of salivation, for example, and desultory treatment has only a slight repressive effect on the infection. Although mercury is much inferior to salvarsan in its killing power, I believe it has one great advantage, namely, its penetrative power. Mercury circulates as an albuminate; in other words, as an integral part of the body fluids, and in this way I believe it penetrates more deeply into the tissues than salvarsan, which is practically a foreign body.

What bearing, now, have these considerations on the problem at hand? Just this — the immediate effects of salvarsan treatment are all that can be desired in almost every case of syphilis. Anyone who is competent to give the drug can feel confident, by judicious treatment, of removing all symptoms, including the serum reaction, in most cases; but, except in early cases, no one can be sure that, in a given case, the treatment which has produced these excellent immediate effects is sufficient for a permanent cure. If, however, we can use at the same time a drug which is able to kill the relatively few remaining spirochetes by its superior penetrative power, we have a powerful combination against relapse. The adjuvant action of mercury has been clearly shown by Captain Craig, in an analysis of the effect of salvarsan on the serum reaction.[10] A considerably higher percentage of cases which had had previous mercurial treatment became negative and fewer relapsed than was the case when salvarsan alone was used. If the reasoning given above as to the cause of relapses and the action of salvarsan and mercury are correct, we may certainly expect to make great advances along these lines and reports which are beginning to be issued and my own experience seem to bear out the correctness of these views. The best form of combination method is not yet entirely fixed, but the principles are definite: Use salvarsan to kill the bulk of the spirochetes and thus to control the symptoms, and mercury to eradicate the last few organisms and to forestall relapses.

The Primary Stage.—With our present knowledge I believe that the best way to treat a patient in the primary stage is as follows: Diagnose the lesion as soon as possible by use of the dark-field microscope or of Giemsa's stain; excise it, if the location permits; give an intravenous injection of salvarsan of from 0.4 to 0.6 gm. and follow this by one month's treatment with mercury by inunction or injection. Complete the treatment by a second intravenous injection of salvarsan. If the serum reaction is present at the start, a second month's treatment with mercury should follow the second injection. Hecht[11] has recently reported twenty-three cases of patients treated in this way with and without excision and with but three serologic relapses in periods of from four months to one year. He gave the mercury in the form of calomel injections or inunctions. In regard to excision, one has only to study a section of a chancre stained by the Levaditi method to realize that the initial lesion is very densely packed with the invading organisms, and to see the advantage of removing this possible source of relapse.

The Secondary and Tertiary Stages.—One or more intravenous injections, with a week's interval, should be given until the symptoms are under control. At the same time an intensive treatment of mercury should be given for one month to six weeks; then the entire procedure should be repeated, the amount of salvarsan to be given being based on the state of the serum reaction. In cases which are known to be especially resistant, such as cases of bone- and joint-syphilis, a third "cure" should be added. Reports are already appearing which indicate permanent results along these lines and show that the radical cure of syphilis can be made a question of months rather than of years.[12] As was stated above, the exact form of the best combination method has not been determined. Some workers are giving small doses of from 0.1 to 0.2 gm. every three or four days for four to six weeks,[13] while others are giving larger doses at longer intervals. In any case it appears that with the combination treatment we are on the right track to a permanent result in a much shorter time than has been possible heretofore.

In regard to the dangers of the use of salvarsan, I have had no bad effects which could reasonably be attributed to the proper use of the preparation, and in suitable cases and with proper precautions one can feel as little hesitation about using salvarsan as one would in using thymol or any other powerful remedy. I have had two cases of relapses affecting the nervous system and both cases improved under further treatment with salvarsan and mercury.

CONCLUSION

As has been said before, the use of the combination of mercury and salvarsan has been taken by some old-line syphilographers as an admission of the failure of the drug, and various disparaging remarks have been made about the inexperience and rashness of various workers who "rushed" into the field of syphilis with salvarsan.[14] It is perfectly true that the spirochetes are more difficult to eradicate than many of the younger workers imagined; but, for all that, salvarsan has come to be an integral part of the modern conception of the treatment of syphilis, and we can never go back to the old ways of handling the disease. No one properly equipped to treat syphilis, and in his right senses, would think, in these days, of waiting for secondaries before beginning treatment. In the same way, no one who is properly equipped will fail to use salvarsan when it is indicated. The old-line method of handling syphilis had reached its high-water mark about 1900. Up to this time syphilis was monopolized by syphilographers who had carried the empirical method of treatment to a high pitch, and by dermatologists who were expert at differen-

10. Craig: Arch. Int. Med., 1911, viii, 395.

11. Hecht: Deutsch. med. Wchnschr., 1911, xxxvii, 2039.
12. Klingmüller: München. med. Wchnschr., 1911, lviii, 2145.
13. Kromayer: Deutsch. med. Wchnschr., 1911, xxxvii, 1547.
14. Gotthelf: Prog. Med., 1911, iii, 130.

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tiating a papulosquamous from a tuberculosquamous lesion and so on; but as Neisser says, the whole subject had come to a standstill as regards modern scientific advances.[15] In 1903, however, Metchnikoff transmitted the disease to apes and thus started a movement which eventually robbed the disease of its mystery and gave it its place among the infectious diseases and threw it open to work along modern lines. In rapid succession came the discovery of the cause in 1905, a means of serum diagnosis in 1906, and a method of specific treatment in 1910. All these contributions came from the laboratory and not from syphilographers, and they form interdependent parts in the modern conception of the disease, which is radically different from many of the older conceptions. There is no occasion for quarrel with the older methods unless the issue is forced, and while salvarsan has not fulfilled all expectations, the day of modern achievements is young and the future of syphilis belongs to those who follow the disease along the lines laid down by Metchnikoff, Schaudinn, Wassermann, Noguchi and Ehrlich.

SUBCUTANEOUS INJECTIONS OF SALVARSAN IN GENERAL PARESIS

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In selecting the following cases of general paresis for treatment with salvarsan, those patients were taken who, by physical and mental examination, showed as near as possible the earliest symptoms of mental and physical deterioration. As is the rule in state hospitals, the patients are those who in normal life have become, through the ravages of this much-dreaded and incurable disease, incapacitated and unable to keep the home together or provide for their own necessities.

CASE 1.—*Patient.*—F. W., a man aged 31, married, a billposter, was admitted to hospital, Aug. 9, 1911. Family history was negative. Previous health good up to about one year previously when he became nervous and slightly irrational at times. Patient gave a specific history of about six years' duration.

Physical Examination.—No physical defects; well-nourished. Alimentary and respiratory systems normal. Urinalysis negative. Heart normal; arteries slightly hardened. Pulse-rate 102, regular but weak. Eyes and ears normal. No Argyll-Robertson pupil; no aphasia or incoherence. Patellar reflex decreased; plantar normal. No ankle-clonus; gait steady and ataxia absent. Mental condition normal except for enfeebled memory; handwriting distinct and letters well formed.

Treatment and Results.—Aug. 16, 1911, the Wassermann reaction was made and found to be positive. August 19, 0.6 gm. salvarsan was given subcutaneously. Patient was confined to bed for two days following injection. September 6, tremor of the hands developed and he became irritable. October 4, the Wassermann reaction was made again and was positive. The patient had somewhat improved up to this time but began to fail again, tremor reappearing and paretic speech developing with appearance of slight aphasia. Salvarsan, 0.6 gm., was again given subcutaneously October 20 and the patient was confined to bed for two days following. From this time on he steadily failed mentally and physically, convulsions appearing on November 27. The Wassermann reaction was made on December 6 and found to be still positive. The patient failed steadily and died during convulsion, Dec. 10, 1911.

CASE 2.—*Patient.*—S. E. W., a man aged 40, married, painter, was admitted to hospital April 11, 1911. The family history was negative. Previous health had been good up to about one year previously when he had financial losses and became greatly worried. March 25, 1911, he became suddenly violent for a few days. On admission to hospital he acknowledged syphilis of about eight years' duration.

Physical Examination.—No physical defects; patient well nourished. Alimentary, respiratory and circulatory systems were normal; urinalysis negative. Eyes and ears normal; no Argyll-Robertson pupil. No aphasia, but slight incoherence. Patellar reflex absent; plantar reflex and ankle-clonus absent; pupillary reflex reduced. Gait steady; no ataxia. Memory and logical powers somewhat enfeebled; handwriting distinct and letters well formed.

Treatment and Results.—May 12, 1911, the Wassermann reaction was positive. May 23, 1911, 0.6 gm. salvarsan was injected subcutaneously. The patient was slightly ill for two days. From this time on he began to decline mentally and physically. June 13, 1911, he lost control of the sphincter muscles. June 19 he had several convulsions. Failed steadily mentally and physically till September, when improvement set in physically. December 20, the Wassermann reaction was found to be positive, after which time he was confined to his bed, having numerous convulsions and failing rapidly mentally and physically, dying Feb. 2, 1912.

CASE 3.—*Patient.*—E. L., a man aged 38, single, laborer, was admitted to hospital Jan. 3, 1911. Family history was negative. Previous health had been fair up to ten days before admission when he became suddenly unbalanced mentally. Supposed cause of attack was given as alcohol and cigarettes.

Physical Examination.—No physical defects; patient in fair state of general health. Alimentary and respiratory systems normal; heart defective and arteries hardened. Urinalysis negative; eyes and ears normal. No Argyll-Robertson pupil; voice paretic. Slight incoherence; no aphasia. Patellar reflex exaggerated; plantar and pupillary reflexes normal; no ankle-clonus. Gait steady but slight ataxia present. Poor memory and logical powers; handwriting characteristic paretic type.

Treatment and Results.—Jan. 4, 1911, Wassermann reaction was positive. Feb. 3, 1911, salvarsan 0.6 gm. was injected subcutaneously. The patient improved slightly mentally following this. Wassermann reaction, repeated March 7, 1911, was positive. He was reinjected with salvarsan April 12, 1911, and improved physically after this second injection. June 3, Wassermann reaction was still positive. From this time on to the present (Dec. 28, 1911), his mental condition has remained unchanged and his health is good. He is in the second stage of paresis.

CASE 4.—*Patient.*—C. M. L., a man aged 42, single, clerk, was admitted to hospital Nov. 15, 1910. He has one brother in hospital under treatment. The patient's previous health had been good until March, 1910, when he became deranged mentally. Supposed cause of attack was given as alcohol.

Physical Examination.—No physical defects; patient well nourished. Alimentary, respiratory and circulatory systems normal, except slight tachycardia. Urinalysis negative. Eyes normal; ears ill-formed. No Argyll-Robertson pupil. Voice normal; no aphasia; slight incoherence. Patellar and plantar reflexes normal; ankle-clonus absent; pupillary reflex greatly reduced. Gait steady and no ataxia present. Poor memory and logical powers. Characteristic paretic type of handwriting.

Treatment and Results.—Wassermann reaction was positive on Dec. 16, 1910. On Jan. 27, 1911, salvarsan 0.6 gm. was injected subcutaneously. Slight improvement mentally and physically followed. Wassermann reaction was positive on February 11. The patient was rapidly improving and on June 3, 1911, Wassermann reaction was still found to be positive. The improvement continued until the first week in August, when the patient experienced a sudden change for the worse, becoming noisy and destructive. He declined rapidly mentally and physically until present time (Dec. 28, 1911). He is now quieter and seems to be again slightly improving mentally. His health is fairly good.

CASE 5.—*Patient.*—W. V. L., a man aged 40, married, a drug clerk, was admitted to hospital Nov. 10, 1910. He is a brother of patient in Case 4. Previous health was good except when

15. Neisser: Die experimentelle Syphilisforschung nach ihrem gegenwärtigen Stande, 1908.

28 years old when he was here in the hospital for six months. The cause of the present attack is unknown.

Physical Examination.—No physical defects; general health fair. Respiratory system normal; stomach in poor condition; heart weak. Urinalysis negative. Eyes and ears normal; no Argyll-Robertson pupil. Voice fair; slight incoherence but no aphasia. Patellar reflex slightly reduced; plantar normal, pupillary reduced. Ankle-clonus absent; gait unsteady and ataxia present. Poor memory and logical powers; paretic type of handwriting.

Treatment and Results.—The Wassermann reaction made Nov. 14, 1910, was positive. The patient was restless and erratic from the time of admittance till Jan. 17, 1911, when 0.6 gm. salvarsan was injected subcutaneously. He began to improve from this time, gaining in flesh and becoming more rational. Improvement continued until about the middle of February, when there was a sudden change for the worse and he failed rapidly. His condition at that time was about the same as it was before the injection. He has failed slowly but steadily since then and is at present (Dec. 28, 1911) in the third stage of paresis.

Case 6.—*Patient.*—A. S. S., a man aged 37, single, merchant, was admitted to hospital Oct. 25, 1910. Family history was negative and patient's previous health had been good. The cause of the present trouble was given as syphilis.

Physical Examination.—No physical defects; general health fair. Alimentary, respiratory and circulatory systems normal. Urinalysis negative. Eyes normal; ears large and flat; no Argyll-Robertson pupil. Voice fair; slight incoherence; no aphasia. Patellar reflex slightly reduced; plantar and pupillary reflexes reduced. Ankle-clonus present in right. Gait slightly unsteady; slight ataxia. Poor memory and logical powers; handwriting clear and letters distinct.

Treatment and Results.—This patient was under treatment for a few months before admittance to the hospital. Wassermann reaction was positive in March, 1910. The patient was placed on mercurial treatment and on Oct. 15, 1910, the Wassermann reaction was negative. Dec. 6, 1910, after entering the hospital, the Wassermann reaction was made and found to be positive. The patient's condition remained unchanged; salvarsan was injected April 4, 1911. He improved somewhat physically following the injection and on June 3, 1911, the Wassermann was found to be still positive. June 20, he was reinjected with 0.6 gm. salvarsan. He slowly declined mentally and physically from this time on. Necrosis set in at the seat of the last injection and a discharge from it was present until the middle of November, 1911, when it finally ceased. The Wassermann reaction was again positive Dec. 11, 1911. At present (December, 1911) the patient is slowly failing mentally and physically.

Case 7.—*Patient.*—R. C., a man aged 34, married, a farmer, was admitted to the hospital May 15, 1909. Family history shows one brother insane. Patient's habits had been good. Duration of attack was about one year. Cause of trouble was given as worry.

Physical Examination.—No physical defects; general health good. Alimentary, respiratory and circulatory systems were normal. Urinalysis negative. Eyes and ears normal; no Argyll-Robertson pupil. Voice good; slight aphasia and incoherence. Patellar reflex increased; plantar absent; no ankle-clonus; pupillary reflex greatly reduced. Gait steady; very slight ataxia. Poor memory and logical powers; depression.

Treatment and Results.—From time of admittance on, the patient was disturbed and confused mentally a greater portion of the time. His general health remained good. Dec. 20, 1910, the Wassermann reaction was positive and on April 27 the patient was injected with salvarsan. A mental improvement followed and he became brighter and more rational. His general health remained good. June 5, 1911, the Wassermann reaction was found to be negative. At present (December, 1911) the patient's health is good. His mind, however, is failing slowly and he is confused and talkative at times.

Case 8.—*Patient.*—A. M., a man aged 43, widower, salesman, was admitted to hospital March 30, 1909. Family history was negative. Habits of patient were poor; he was dissipated and gave a specific history of twenty years' duration.

Physical Examination.—No physical defects. Syphilitic scars on chest. Health good. Alimentary, respiratory and circulatory systems were normal. Urinalysis negative. Eyes and ears normal; no Argyll-Robertson pupil. Voice fair; no aphasia; slight incoherence. Patellar reflex normal; plantar reduced; no ankle-clonus; pupillary reflex reduced. Gait steady; slight ataxia. Poor memory and logical powers; exalted.

Treatment and Results.—From the time of admittance the patient was very delusional, restless and erratic; exalted most of the time. General health remained fairly good. Oct. 21, 1910, the Wassermann reaction was positive. Feb. 14, 1911, salvarsan, 0.6 gm., was injected subcutaneously. Marked improvement followed, health becoming better and mental condition brighter. The Wassermann reaction, March 7, 1911, was found to be negative. Health remained good and mental condition somewhat better. The Wassermann reaction was again taken Dec. 11, 1911, and was positive. At present (December, 1911) the patient is slightly confused at times and somewhat exalted, and is slowly declining mentally and physically.

The results obtained as shown in the foregoing cases are far from encouraging any hope for benefit in this disease by the subcutaneous method of administration of salvarsan. In fact, if these few cases are to be taken as examples of its action on general paresis, it is far more humane and will grant the patient a longer lease on life to dispense with it as a mode of treatment. It seems to have a tendency, as in the iodid and mercurial treatment, to aggravate the symptoms and hasten the ultimate end. From past and present results obtained in the treatment of general paresis there is, as I see it, but one method to stamp out this disease, and that is by prophylaxis. The law should require that each and every case of active syphilis coming under a physician's care should be treated by the mercurial method or by salvarsan until the Wassermann reaction becomes negative and remains so for at least one year.

I wish to express my indebtedness to Dr. H. P. Mills, who, in performing the Wassermann reactions and administering the salvarsan in these cases, made this paper possible.

HEPATOPTOSIS AND HEPATOPEXY

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REPORT OF CASE AND OPERATIVE METHOD. TABULATION OF HEPATOPEXIES

The condition of liver prolapse (hepatoptosis, *Wanderleber, hepar mobile,* or *migrans, l'hépatoptose totale*) was discovered by Heister,[1] in 1754, on the dissecting table; but not until 1886 was this interesting hepatic malposition brought to general attention, through its clinical description by Cantani.[2]

The priority of its operative remedy belongs to Billroth, who, in 1884, performed the first hepatopexy in a case of partial hepatoptosis. The first operation for complete prolapse was done by Michle, Nov. 17, 1887.

Since then, about sixty-six hepatopexies have been performed; of these only four in this country.

Ferrier and Auvray,[3] and especially Boettcher,[4] in splendid articles, describe the condition and report cases up to 1900. Boettcher collected forty-five cases, of which twenty-one were complete dislocations.

1. Heister: Acta Phys. med. naturæ Curiosorum, Nuremberg, 1754.
2. Cantani: Caso di fegata ambulante, Ann. Univ. di Med. Milano, 1886.
3. Ferrier and Auvray: Rev. de Chir., 1897, Nos. 8 and 9.
4. Boettcher: Deutsch. Ztschr. f. Chir., 1900, lvi, 252.

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The condition may be congenital or acquired. Among congenital causes have been reported absence of suspensory ligaments (Lonquet, Lannelongue and Hague), shortened ligamentum teres causing downward traction on the liver (Langenbach), and elongated coronary ligaments forming a kind of a hepatomesentery (Meissner).[5] Whether this latter condition is really congenital seems questionable, as the extended supports may of course be, and probably are, caused by the dragging of the prolapsed organ, and thus only a secondary affair.

Abnormal elongation of vena cava may also, according to Faure,[6] be a factor in hepatic descensus.

The condition may be acquired by trauma, as in Michle's case, heavy lifting (Ferrari), by the use of improper corsets (Glenard), rapid emaciation, sudden decrease of intra-abdominal pressure, followed by great relaxation of the abdominal walls as in extirpation of large abdominal tumors, following pregnancy, etc.

Langenbach and DePage consider pendulous abdomen as one of the most important causative factors.

Schmidt[7] draws an analogy between hernia and this condition, asserting that in both there is an inherent weakness or predisposition. In some of the cases of partial prolapse (Reidel), disease of the gall-bladder seemed to play an important rôle, as surgical correction of the biliary defect alleviated or completely cured the condition.

In the greatly prolapsed liver cases, pregnancy stands forth as a rather prominent factor, only four or five of these patients being nulliparæ. The condition is, by far, more frequent in the female. There were only two males in the cases as collected below. The average age of the patients was 38 years.

PATHOLOGIC ANATOMY

Various degrees of ptosis have been described with or without version of the organ. The prolapse has been divided into a complete and a partial. As complete, descension has been considered a condition in which the liver at no place touched the diaphragm.

Among the partial prolapses has been included the condition described by Reidel and others, in which there is only a localized hypertrophy of a lobe, although the main body remains in normal position. It seems to me the term *lobe flottant* more correctly describes this condition, as it is really only a movable lobe of the liver, which may be pushed to and fro without at all changing the position of the main liver-body.

If grouped among liver prolapses, it really then should be termed a pseudohepatoptosis. Langenbach[8] describes two topographic types of the completely prolapsed organ; either a horizontal descent, the liver then being found in the mid-abdomen, or else in the right belly cavity with the right lobe first sometimes in the false pelvis.

In these positions the liver may be fixed by adhesions.

The liver may, of course, in its altered position, become the prey of any of the pathologic conditions to which it otherwise is liable, thus greatly obscuring the diagnosis. In a great number of cases there was a right prolapsed kidney, and probably more often than reported, a general enteroptosis. Faure believes this to be the case in all totally descended livers.

In some of the cases classified as partial hepatoptosis there is often only a morphologic change of the organ, the main body retaining its normal position. It is really a localized hypertrophy which mostly affects the right lobe. Very often this overgrowth presents itself as a tongue-like, very movable projection, sometimes connected with the liver by a small bridge of connective tissue which may be only 1 cm. thick (Poppert). The lobe itself may be of a firmer consistency than the rest of the liver, owing to intralobular sclerosis.

The condition is very often associated with, and seemingly caused by, gall-bladder disease. At other times the biliary disturbance is due to pressure on the bladder and ducts by the abnormal lobe. With this there is often a dislocation downward of the right splenic flexure, at times interfering greatly with peristalsis.

Right nephroptosis frequently accompanies the condition. Although not reported, I should think that in the early stage of complete prolapse or even throughout there should be some anteversion, the posterior border being somewhat retarded in its descent by the vena cava, thus allowing the anterior border to descend at a more rapid rate than its hindfellow.

SYMPTOMATOLOGY

In acute cases symptoms come on rapidly with severe pain, nausea, vomiting, meteorism, extreme nervousness, etc. In one instance the patient was completely relieved by manual reposition of the organ. Chronic cases are early characterized by insidious symptomatic manifestations.

The usually first and most prominent symptom is pain, often associated with a feeling of heaviness and discomfort in the right side. Pain was present in all the cases. It may be local in the right side or diffuse, and may radiate to the epigastrium, to the back, right shoulder, in the neck or down the right limb. It may be constant or periodic, pulling, tearing, sticking, boring or dragging. As a rule, it is increased by movements and relieved by rest. My patient always felt better in the morning after a night's rest.

Next to the pains come gastro-intestinal disturbances, viz., nausea, vomiting, biliousness, icterus and constipation. With these disturbances there is often associated the phenomena of an extreme neurosis, viz., restlessness, irritability, globus hystericus, clavus hystericus, crying spells, hot flushes, chilly sensations, insomnia, suicidal tendencies, melancholia, etc. The partial prolapse may occur without any symptoms.

DIAGNOSIS

There is nothing pathognomonic in the symptoms. Thierfelder[9] gives three objective signs for total prolapse:

1. The presence of a tumor of about the size, shape and consistency of the liver, in the middle or lower right abdomen.

2. Tympanitic percussion over the usual site of the liver.

3. Ability to replace the liver in normal position. (This is, of course, impossible in case of adhesions.)

Inspection may be negative or show change in the shape of the chest, pendulous abdomen and a tumefaction in the right side. Palpation is the most important method of examination and should be practiced with the patient in both standing and lying position. The shape, size, edge, consistency and great mobility of the liver may enable one to make the diagnosis. Reposition should be practiced. There is tympany over normal liver area and dulness when organ is replaced.

5. Meissner: Schmidt's Jahrb., 141.
6. Faure: L'hépatoptose et l'hépatopexie, Thèse de Paris, 1892.
7. Schmidt: Handbuch der spec. Therapie inn. Krankh., 1895, vi.
8. Langenbach: Deutsch. Chirurgie, Lieferung, 45 a, 2 Heft.
9. Thierfelder: Ziemssen's Handbuch. d. spec. Path. u. Ther., 1880, viii, 2.

TABLE SHOWING HEPATOPEXIES REPORTED IN LITERATURE‡

Operator.	No. of Case	Sex	Age	Diagnosis	Operation			Oper. Findings	Results	Reference
					Date	Incision	Method of Suspension			
Billroth, cited by V. Haecker.	1	F.	36	Kidney tumor	3/21/1884	Lumbo-abdom.	Silk ligature through edge of liver, through entire abdominal wall and tied on iodoform gauze.	Total liver prolapse	Recovery	Wien. med. Wchnschr., 1886, Nos. 14-15.
Michle	2	F.	20	Total hepatopt.	11/17/1887	Lumbo-abdom.	Two silver sutures, one through edge, one along edge forming cross with the first into abdominal wall.	Total hepatopt.; right nephroptosis.	1894, good condition	Tr. Int. Med. Cong., Moscow, 1897, v, 126.
Fachering	3	F.	36	Uncertain	6/9/1888	Lumbo-abdom.	Silk sutures through edge with subcutaneous tissues; tamponade.	Partial hepatoptosis	1¾ years in good condition.	Zentralbl. f. Chir., 1888, No. 23.
Ferrier and Baudouin.	4	F.	52	R. nephropt.	5/8/1888	Median	Cholecystotomy	Same; biliary calculi	Improved	Prog. med., 1888, No. 33.
Langenbach	5	F.	50	Partial hep.	6/11/1890	Transverse	Six silk sutures through liver into abdominal wall.	Partial hepatoptosis	8/18/1890, good	Berl. klin. Wchnschr., 1891, p. 68.
	6	F.	*	R. nephropt.	../../....	Outer border r. rectus.	Eight silk sutures around costal arch	Total	3 mos. after oper., good.	Ibid.
Gerard-Marchant	7	F.	37	Echinococcus cyst of liver.	3/28/1891	Same	Liver fixed to abdominal wall and costal arch with four silk ligatures.	Total hepatopt.; right nephroptosis.	8 mos. later, good	Ibid. Bull. Acad. de Med., Paris, Aug. 11, 1891.
Desquin, cited by Hannecart.	9	M.	23	Hepatoptosis	../../1892	Same	Liver fixed to parietal peritoneum	Total hepatoptosis	Death, acute periton.	Am. Soc. de med. d'Anvers, 1892.
Depage	10	F.	67	Hepatoptosis; gen. enteropt.	6/28/1893	Special	Laparectomy only	Total	3½ yrs. later, good.	Jour. méd. de Brux., 1896, No. 8; also De l'Intervention Chir. dans la splanchnoptose, Bruxelles, 1803.
	11	F.	36	Hepatoptosis	10/15/1893		Same	Total	11/21/1896	
	12	..	40	Hepatoptosis	11/5/1893		Same	Total	Died from shock 32 mos. after oper.	
	13	..	30	Hepatoptosis	11/22/1897		Same	Total	3 mos. later, good.	
Richelot	14	F.	28	Tuberculai typhilitis.	4/12/1893	Outer border r. rectus.	Three catgut sutures through edge of liver into abdominal wall.	Total hepatoptosis, with some adhesions.	3½ mos. later, good.	Gaz. Hebd. de méd. et Chir., 1893.
Lannelongue and Taquet, cited by Contonier.	15	F.	52	Omental tumor	../../1892	Median	Same, and scarification of liver	Total hepatoptosis	March, 1895, in good condition.	Contonier: Thèse Bordeaux, 1895.
Bobrow	16	F.	50	Hepatoptosis	1/29/1895		Two silk ligatures, lower edge to cartilage; ninth rib scarification.	Cirrhosis; total hepatoptosis.	Improved	Vrach, 1895.
Franke	17	F.	23	Ren mobilis	12/13/1895	Parallel costal arch.	Catgut sutures, lower edge to abdominal wall; iodoform gauze tampons removed in eight days.	Total hepatoptosis	8/8/1896, good	Zentralbl. f. Chir., 1896, p. 775.
Franke	18	F.	41	Hepatoptosis	3/28/1896	Same	Same	Same	Same	
Pean	19	F.	29	Ren mobilis	6/30/1896	Transverse	Artificial peritoneal sac	Total	3 mos. later, good.	Cong. de chir., 1896.
Treves	20	F.	22	Hepatoptosis Gen. enteropt.	6/../1895	Median	Three silk ligatures, liver to abdominal wall; round ligament to xiphoid.	Total general hepatopt.	Good	Brit. Med. Jour., January, 1896.
Ramsay	21	F.	39	Uncertain	4/24/1896	Middle r. rectus	Silk suture round ligament to cart. 7th rib; two kangaroo tend. liver to abdom. wall rubbed with sterile gauze.	Total nephroptosis	One year later, good.	Brit. Med. Jour., May, 1897.
Arellza	22	M.	20	Echinococcus cyst of liver.	2/12/1896		Four silk sutures, liver to abdominal wall	Total hepatoptosis	5 years later, good.	Riv. Med. y Chir., July 5, 1897.
Blanc	23	F.	35	Hepatoptosis	2/15/1896	Outer border r. rectus.	Scarification; five silk ligatures to cartilage and abdominal wall.	Total hepatoptosis	1½ years later, good	Lyon médicale, 1897, No. 43.
Lucas - Championnière, cited by Tueniot.	24	F.	35	Hepatoptosis	7/26/1895	Median	Catgut suture; abdominal wall touched liver and perit. with 5% sol. phenol (carb. acid).	Total hepatoptosis	5/1/1897, good	Gaz. d. hôp., Paris, April 1, 1897, p. 372.
Delagénière	25	F.	30	Uncertain	1/16/1896	Outer border r. rectus.	Catgut	Total hepatoptosis; cirrhosis.	5/13/1896, good	Arch. prov. de Chir., 1897.
Ferrari	26	F.	24	Hepatoptosis	2/12/1897	Transverse	Four catgut sutures to abdom. wall; iod. tampon.	Partial hepatoptosis	Recovery	Atti. Soc. ital. de chir., 1887.
Genouville and Routier.	27	F.	*	R. nephropt.	../../....	Not given	Fixed by two catgut sutures, abdominal wall	Partial	Recovery	Ann. d. Mal. d. org. urin., xvi, 1281.
Genouville and Routier.	28	F.	*	R. nephropt.	../../....	Not given	Same	Partial	Recovery	
Legneu, cited by Chevallier.	29	F.	31	Enteroptosis	8/9/1897	Outer border r. rectus.	Silk ligature through liver, sling fashion	Total hepatoptosis; general enteroptosis.	Uncertain	Chevallier: Thèse, Paris, 1896.
Legneu, cited by Chevallier.	30	F.	27	Echinococcus cyst	8/25/1897	Same	Same	Total	Five months, good.	
Jeannel	31	F.	37	Probable hepatoptosis.	11/20/1899	Parallel costal arch.	Silk lig. suspended liver in trapeze from costal arch.	Total	July, 1900, good	Arch. prov. de Chir., 1900, ix, 737.
Poppert, cited by Boettcher.	32	F.	28	Hepatoptosis	3/29/1898	Vertical	Silk suture through liver-edge and abdom. wall; iod. tamp.	Anteversio hepatis	Recovery; late result unknown.	Boettcher: Deutsch. Ztschr. f. Chir., 1900, lvi, 252.
Poppert, cited by Boettcher.	33	F.	40	Hepatoptosis	1/28/1899	Vertical	Same	Same	2/15/1900, good	Ibid.

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Poppert, cited by Boettcher.	34	F.	36	Hepatoptosis ...	5/ 3 /1899	Along costal arch.	Same	Same	Recovery	Ibid.
Poppert, cited by Boettcher.	35	F.	61	Partial hepatopt.	8/ 5 /1898	.....	Silk lig. through liver and round lig. to abdom. wall; iod. gauze tamp.	Constricted liver	5/25/1900, good ...	Ibid.
Poppert, cited by Boettcher.	36	F.	43	Partial hepatopt.	8/ 9 /1898	.....	Same	Corset liver	3/23/1900, good ...	Ibid.
Poppert, cited by Boettcher.	37	F.	51	Partial hepatopt.	10/14/1898	.....	Same	Corset liver	Same	Ibid.
Poppert, cited by Boettcher.	38	F.	45	Partial hepatopt.	2/ 8 /1899	.....	Same	Corset liver	4/11/1900, good ...	Ibid.
Poppert, cited by Boettcher.	39	F.	54	Partial hepatopt.	6/22/1898	.....	Same	Corset liver and right nephrotosis.	4/29/1900, good ...	Ibid.
Poppert, cited by Boettcher.	40	F.	29	Partial hepatopt.	2/ 4 /1898	.....	Same, and r. nephropexy.....	Same	Three complete recoveries; five improved.	
Poppert, cited by Boettcher.	41	F.	33	Partial hepatopt.	4/26/1898	.....	Same	Same		
Poppert, cited by Boettcher.	42	F.	26	Partial hepatopt.	7/27/1899	.....	Same	Same		
Poppert, cited by Boettcher.	43	F.	23	Partial hepatopt.	5/25/1897	.....	Same	Same		
Poppert, cited by Boettcher.	44	F.	36	Partial hepatopt.	6/21/1898	.....	Same	Same		
Poppert, cited by Boettcher.	45	F.*	43	Partial hepatopt.	8/30/1898	.....	Same	Same		
Poppert, cited by Boettcher.	46	F.	22	Partial hepatopt.	4/17/1899	.....	Same	Same		
Poppert, cited by Boettcher.	47	F.	33	Partial hepatopt.	1/20/1899	.....	Silk lig., as above, and cholecystotomy.....	Partial hepatoptosis and cholelithiasis.		
Lennander	48	F.	33	.....	9/ 9 /1897	.....	Sutured edge of liver, catgut to abdom. wall; cholecystotomy tamp.	Partial hepatoptosis and cholelithiasis.	December, 1897, good	Gaz. d. hôp., 1900, lxxiii, 545.
Lennander	49	F.	56	Uncertain	../../1899	.....	Thermocautery on liver; cholecystotomy.....	Localized peritonitis, gangrenous chole.; total prolapse.	In November condition good.	Ibid.
Pianori	50	F.	34	.....	../../1901	Not given	Sut. of susp. lig. to abdom. wall.....	Partial hepatoptosis ...	Recovery	Gazz. deg. osp., 1901, p. 1515.
Venturoli	51	F.	50	Nephroptosis ...	9/11/1900	Lumbo-abdom..	Liver-edge sut. by silk; partial lig. to abdom. wall.	Partial	Left hospital 10/29, good.	Atti. d. Soc. ital. Chir., 1900; Rome, 1901, xv, 52.
Carstens	52	F.	48	Uncertain	../../1902	Vertical	Round lig. sutured to upper angle of wound.....	Total hepatoptosis	3 mos. later, good...	The Journal A. M. A., 1902, xxxviii, 1294.
Judet	53	F.	41	Hepatoptosis; gen. enteropt..	7/ 8 /1901	Outer border r. rectus.	Six catgut sut., liver-edge abdom. wall; gall-bladder fixed in wound tamp.	Partial hepatoptosis and right nephroptosis.	12/6/1911, good ...	Rev. d. gynec., Paris, 1902, vi, 131.
Judet	54	F.	46	Hepatopt. stone in gall-bladder; r. neph.	3/24/1901	Same	Same, and cholecystotomy.....	Hepatopt; cholelithiasis	10/5/1901, good ...	
Judet	55	F.	49	Liver cyst or cancer	5/24/1901	Same	As in No. 53.....	Total prolapse	2/ 7 /1901, good ...	
Jonas	56	F.	41	Cholelithiasis; R. nephropt.	../../....	.....	Gall-bladder suture, upper part of wound.....	Partial hepatopt.; calculi in gall-bladder.	Recovery	The Journal A. M. A., Jan., 1902, xxxviii, 122.
Lambotte	57	F.	28	Total hepatopt...	6/13/1901	Median	Round lig. sut. to upper angle of wound; two silk lig. through liver to abdom. wall; scarification.	Total hepatopt.; coloptosis; gastroptosis; no nephroptosis.	Recovery; good	Ann. de Soc. de méd. d'Anvers, 1902, lxiv, 93.
Mercier	58	F.	†	R. nephropt.	3/25/1902	Outer border r. rectus.	Cholecystotomy	Partial hepatopt.; biliary disease.	Recovery	Union méd. du Canada, 1902, p. 264.
Newman	59	F.	40	Uncertain	../../....	Same	Same	Same	.....	Glasgow Med. Jour., 1902, lviii, 204.
Delbet	60	F.	49	.....	11/22/1904	Same	Catgut.....	Partial hepatopt.; stone in common duct.	Recovery.....	Bull. de la Soc. de Chir., Paris, 1904, N. S., xxx, 1056.
Le Fort.....	61	...	...	Tumor of liver or gall-bladder ...	6/28/1903	Same	Catgut through liver into abdom. wall; cholecystotomy.	Partial hepatopt.; stone in gall-bladder.	7/6/1903, good	Echo méd. du Nord., 1906, p. 424.
Godart	62	*	*	.....	.....	.....	.....	.....	.....	Policlinico, Bruxelles, xvi, 150.
Elliot	63	F.	38	.....	12/ 7 /1903	.....	Sut. of round lig. to abdom. wall scarification.....	Partial hepatoptosis ...	5 yrs. in good cond.	Ann. Surg., 1910, li, 258.
Cernezzi	64	F.	41	Hepatopt. right nephropt.	1/ 4 /1907	Lumbo-abdom..	Catgut through liver to abdom. wall.....	Partial hepatoptosis and right nephroptosis.	Recovery 2 yrs; good	Reforma Med., 1910, xxiv, 877.
Cernezzi	65	F.	64	Same	8/../1908	Transverse	Same	Partial hepatoptosis ...	February, 1909, good	Ibid.
Cernezzi	66	F.	43	Hepatoptosis ...	10/19/1908	Same.....	Same	Same	Recovery	Ibid.

* Not given.

† Young girl.

‡ Carstens in his article (Case 52) refers to a case of Leube (München. med. Wchnschr., Jan. 23, 1894) as one of hepatopexy with cure. This article, however, I found to describe a case in which the condition of liver prolapse was found only post mortem, and that it has absolutely no reference to any previous operative interference.

DIFFERENTIAL DIAGNOSIS AND PROGNOSIS

The total ptosis may be confounded with tumor or cyst of the liver, nephroptosis, tumor of the right kidney, omental, mesenteric, intestinal, ovarian and uterine tumors. The partial is especially difficult to differentiate from right nephroptosis.

The condition, as seen from cases collected below, has been mistaken for malignancy of kidney, echinococcus cyst, gumma and carcinoma of liver, tumor of omentum, mesentery and gall-bladder. Enlargement of gall-bladder may be very difficult and impossible to differentiate.

Prognosis as to life following hepatopexy is very good, only two deaths in the series reported; also as to relief it seems surprisingly good.

TREATMENT

The non-operative treatment consists mainly in supporting the organ by abdominal supporter, strapping with adhesive straps, rest cures, and measures tending to build up the system in general, etc.

In the operative treatment incisions used have been vertical ones, through the midline, through the rectus, along outer border of right rectus; parallel ones with the costal arch; transverse a few inches above nipple and lumbo-abdominal.

Material used for suspension was silk ligatures, catgut and silver wire (Michle's case). From two to nine ligatures were used, threaded, as a rule, on curved blunt needles.

The following modes of suspension have been employed:

1. *Liver Sutures.*—Bobrow sewed through the entire thickness of the liver; all the others applied sutures through the liver edge, and then into the abdominal wall. Langenbach, Gerard, Marchant and Bobrow tied them to the costal arch. Billroth carried his sutures through abdominal wall and tied them over a piece of iodoform gauze. Lepeau used silk ligatures so as to form a trapeze in which the liver hung from the costal arch.

2. *Suture of the Round Ligament.*—Treves sutured it to the xiphoid appendix; Ramsay to the seventh rib; several attached it to the upper angle of the incision. In my own case, the ligament was passed around the cartilage of the ninth rib.

3. *Anchoring of the Gall-Bladder.*—Le Fort, Poppert, Lennander and others used this means.

4. *Suture of the Peritoneum.*—Pean sutured it so as to form a sac or hammock for the liver.

5. *Diminishing the Size of the Pendulous Abdomen* (Laparectomy).—This was done by Depage in his four cases.

6. *Artificial Production of Adhesions.*—Several men, not relying entirely on the sutures, produced adhesions between the liver and the abdominal wall by application of sublimate solution, 5 per cent. phenol (carbolic acid), rubbing with sterile gauze, scarification with scalpel or needle, thermocautery, heat radiating from Paquelin cautery and, finally, by the use of tampons kept in from twenty-four hours up to sixteen days.

7. *A Combination of Above Methods.*—Several operators combined these operative procedures.

CASE REPORT

Patient.—A woman, housewife, aged 48, was admitted to the Washington Park Hospital, May 5, 1911. Her father died at 89; mother at 90; two brothers and two sisters living and well. The patient's habits were good. She had measles at 16. She had borne six children in normal labors. There had been no severe trauma.

Present Illness.—This extended back for about six years, and came on gradually, by indefinite, irregularly recurring abdominal pains accompanied by a sensation of discomfort and heaviness in the right side of the abdomen. Lately the pain had become constant, as long as the patient was up and about, and disappeared entirely when patient was lying down; this latter feature she particularly emphasized. The pain was always located in the epigastrium, which led some one to diagnose gastric ulcer. At times it radiated toward the lower abdomen and the back. It had no relation to the taking of food, mental excitement or atmospheric changes. The patient often felt nauseated, but did not vomit. There was no hematemesis; bowels had been somewhat constipated; there was no melena. Appetite had been very poor for some time before examination. Except for an occasional palpitation of the heart, there had been no cardiovascular manifestations. The patient had complained for years of a dry cough. There had been nothing referable to the urinary system; menstruation was regular, painless and of about three days' duration. Patient complained of slight headaches, dizziness, great lassitude, nervous irritability, cold sensations, hot flushes, but no crying spells, no clavus or globular hystericus. There seemed to be no disturbance of the special senses. Mental condition was normal. She was utterly unable to perform her household duties. There was quite a loss in weight.

Examination.—The patient's general appearance was that of an anemic, dull-looking, middle-aged woman. Examination of head and neck was negative. Heart revealed a slight, soft, systolic murmur. Auscultation of chest elicited a few sonorous râles here and there. Inspection showed a greatly pendulous abdomen, slightly more full on the right side; no distended veins; striæ prominent. Palpation demonstrated a large, slightly tender tumefaction in the right and middle abdomen, with a sharp edge, the lower part of which, in lying position, was about 2½ inches below the anterior superior spine of the ileum, and ran obliquely upward into the abdomen. The outer surface of the tumor was perfectly smooth, and of the consistency of the liver. The tumefaction was easily movable, especially in an upward and downward direction. The edge of the tumor could be made very distinct by tipping it upward and backward; it was easily replaced. The tumefaction was surely the liver. Percussion gave tympany over the normal liver area, and when tumor was pushed upward, there was a dulness in the same region. Auscultation revealed no friction over tumefaction. Inflation of the intestine was not practiced, as it seemed unnecessary for the diagnosis. Bimanual vaginal examination revealed a lax pelvic floor, and a completely retroverted uterus. The extremities were negative. The skin, reflexes, tactile and pain sensation were normal; there were no areas of anesthesia, hyperanesthesia, analgesia or hyperalgesia. Pulse was 74; temperature 98.4; respiration 20. Urine examination was negative. Blood examination showed erythrocytes 4,900,000; leukocytes 8,500; hemoglobin 85 per cent.

The diagnosis was total hepatoptosis associated undoubtedly with general enteroptosis.

Operation.—May 15, 1911, under ether anesthesia. Anesthetist, Dr. Rollo K. Packard; assistant, Dr. J. W. Albaugh. After ordinary preparation, the incision was made for about 5 inches along the outer border of the right rectus in a curve toward the xiphoid (Mayo-Robson). When the peritoneum was first opened, there was nothing seen but the liver, which was normal in shape, color and consistency, but seemingly somewhat enlarged. It could be easily pushed into the false pelvis or into its normal position. The round ligament was very much elongated. The gall-bladder and ducts were normal. There was also a gastroptosis, coloptosis and a right nephroptosis; in fact, a general enteroptosis. In performing the fixation, I punctured the chest-wall just above the cartilage of the ninth rib, with a pointed forceps, and caught a fold of the ligamentum teres and sutured it over the cartilage to a lower fold of the same ligament (see illustration). Previous to this, I had vigorously rubbed the liver with sterile gauze.

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Finally I anchored the gall-bladder in the upper angle of the wound. I used chromicized catgut throughout. The abdomen was closed by layers.

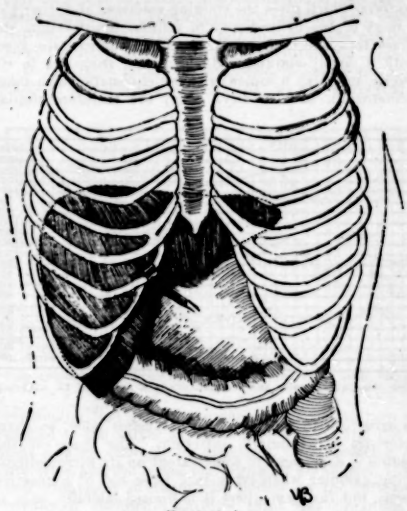
Postoperative History.—Patient was placed in slight Trendelenburg position and remained in bed four weeks, passing through an entirely uneventful convalescence, temperature at no time rising above 100 F., wound healing by primary union. The patient left hospital in good condition, June 10, 1911.

Dec. 11, 1911: The liver edge is felt a little lower than normal, but the organ is not movable. Epigastric pains have completely disappeared. The patient is perfectly able to perform her household duties, neurosis is entirely gone, and she has gained in weight and strength.

SUMMARY

Among the sixty-eight patients (including my own) operated on, there were two males. The average age of the patients was 38 years. There were twenty-eight cases of total, and thirty-eight of partial hepatoptosis.

In the partial hepatoptosis, the diagnosis was made correctly in twenty-three cases. The condition was once



Hepatoptosis.

diagnosed as tumor of the gall-bladder, six times as right nephroptosis, and an uncertain diagnosis was made in eight cases.

In the total prolapse, a correct diagnosis was made in thirteen cases. Incorrect diagnosis of echinococcus cyst was made in four cases, in one of tuberculous typhlitis, in one of omental tumor, of right nephroptosis in three, kidney tumor in one, and an uncertain diagnosis was made in five cases.

The incisions used were lumbo-abdominal in five cases, transverse in twenty-two, through the outer border of the right rectus in nineteen, in the median line in five, through middle of right rectus in one, not given in ten, and special laparectomy incision in four cases.

Catgut was used in eighteen cases, silk in thirty, kangaroo tendon and silver-wire in one each. In the rest, either the liver was not sutured, or kind of suture not mentioned.

Round ligament was sutured six times, gall-bladder twelve times; scarification was done five times, and tamponade was used in twenty-three cases.

Liver was sutured to abdominal wall in forty-eight cases, to costal arch in six, to peritoneum in one, to xiphoid appendix in one, and in the rest the organ was not sutured or else not mentioned.

Operative findings, outside of the liver prolapse, were right nephroptosis in eight cases, general enteroptosis in seven (but must surely have been more), gall-stones in five cases, and gangrenous cholecystitis once.

At least 85 per cent. of the total prolapses were in multiparæ.

1230 East Sixty-Third Street.

RHEUMATIC CARDITIS

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BROOKLYN

A disease which in the young is the most serious single infection, responsible for almost as many deaths as all the exanthematous affections of childhood together (Osler), a disease whose ravages are responsible for crippling most of the crippled hearts of adults—such a topic certainly needs no apology for its introduction, especially since our opinion with regard to this disease requires frequent revision in the light of advancing knowledge.

By rheumatic carditis we understand the successful invasion of the heart by the causal agent of rheumatism, and its production of various pathologic changes. This may, and generally does, occur during the course of a general rheumatic invasion, although it may be confined exclusively to the heart. When a child is attacked by rheumatism, no matter in what form, it is comparatively exceptional for the heart to escape, while the whole brunt of the disease may fall on that organ, other evidence of rheumatism being either absent or so slight as to pass unnoticed. In other words, the heart is in early life the most vulnerable part of the body to the rheumatic poison. According to various observers, in adults the frequency of cardiac complication during the course of a general rheumatic invasion varies. Strümpell finds that from 25 to 30 per cent. of his acute rheumatics have organic heart lesions. Osler finds that out of 360 patients with rheumatic fever admitted to his wards at the Johns Hopkins Hospital, 35 per cent. showed organic valvular disease. As Bauilland stated in 1840, the rule is for the heart to be involved in all cases of severe rheumatic fever. Indeed, so frequently is involvement present in rheumatism; and since, as we shall see later, the pathologic changes and causal agent are identical with those found in rheumatic arthritis, we should look on the heart involvement not as a complication, but rather as a symptom of the disease, in the same light as the joint involvement.

ETIOLOGY

As to the etiology of this condition it is, of course, as has been said, identical with that of rheumatism. What is the cause of rheumatism? Without going into elaborate details, let me briefly summarize the work done recently on the subject. In 1897, Triboulet was the first one to recover a diplococcus from patients dying from rheumatic infection. In 1899, Wassermann cor-

roborated these findings, and in addition, was able to reproduce the symptoms and pathologic lesions of rheumatism, by the inoculation of this diplococcus in rabbits. In 1900, Poynton and Paine, in a work that is classical, recovered this same diplococcus from a large percentage of their rheumatics, and were able to reproduce in rabbits and other animals every phase of rheumatism including the cardiac lesions, recovering the same organism from these lesions. Many workers all over the world have reproduced the same experiments with identical results. During the last four years I was able to obtain, by blood culture, the same organism from three patients suffering from general rheumatic infection, reproduced the disease in the dog, and then by autopsy recovered the organism from blood and lesions of the dog. I shall not here describe the morphologic and biologic characteristics of this organism, but simply state that it is an exceedingly small coccus, from 0.2 to 0.5 units in diameter, usually occurs in pairs, sometimes in short chains, resembling the ordinary streptococcus, but, to my mind, being an entirely different organism, as proved culturally.

A few workers have found other organisms, bacilli, (Achalme's) and staphylococci, etc., but their work, to my mind, is not at all convincing. Whereas one must concede, in view of these findings, that perhaps a single organism is not responsible for all rheumatic invasions, since we can isolate a microorganism from rheumatics, and since, on inoculation of this microorganism in a suitable animal we can produce the symptoms and lesions of rheumatism and, furthermore, recover from the latter lesions the identical organism—in the face of these facts we must admit the infectious nature of rheumatism. The chemical, the nervous, the thermal and all other theories of rheumatism are no longer tenable, and should be discarded. Acids are certainly found in large quantities in rheumatic patients; but I was able to demonstrate the formation of large quantities of formic and lactic acids particularly, produced in the test-tube by my organisms recovered. If they can do it in the test-tube, on artificial media, why can they not do it in the body? As to the portal of entry of these bacteria, there is already sufficient experimental proof to lead one to lay the responsibility on the tonsil. The reason that we do not get a higher percentage of positive blood cultures in these rheumatic patients, we shall understand when we come to consider the pathology, which is so characteristic of this condition.

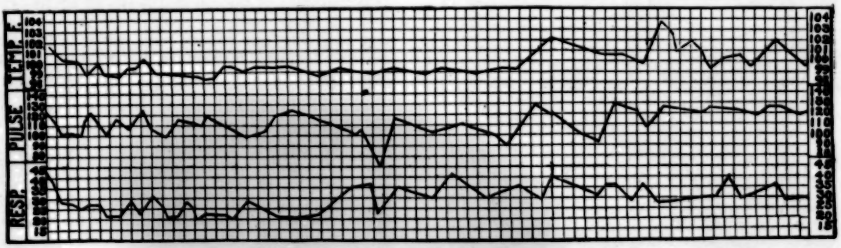


Chart showing relation between respiration, pulse and temperature in a boy, aged 15, suffering

PATHOLOGY

When we come to consider the pathology of rheumatic carditis we find that a striking uniformity of results is obtained by the various observers. (This leads me to think that there must likewise be a striking uniformity in the causal agent of rheumatism.) We find that almost never is a single layer of the heart alone involved, that usually it is in combination with the one or the other layers. The relative frequency of involvement of the various layers varies according to different observers. The myocardium is invariably involved most frequently; the endocardium is next in frequency. In a series of autopsies of patients who have died from rheumatism, Coombs finds it affected in 88 per cent. of cases, while Lees and Poynton find it as high as 99.3 per cent. of their necropsy cases. The pericardium is involved in two-thirds of all cases of rheumatic carditis. Williams finds the pericardium affected in 75 per cent. of his cases of cardiac rheumatism.

Pathologically, we find as a rule in all three parts of cardiac wall certain inflammatory lesions, which have been called "submiliary nodules" (C. Coombs). These nodules consist of (a) a groundwork of homogenous material which gives the staining reactions of fibrin; (b) a more or less defined zone of cellular proliferation, the characteristic cells being large and of a fibroblastic type, with a deeply staining cytoplasm and from one to six nuclei, in which a somewhat loose chromatic skein takes hematoxylin with avidity. They are therefore similar in structure to the larger subcutaneous node, so characteristic of rheumatic infection. The shape of the nodule is dependent to some extent on its surroundings, being globular when lying in a loose bed of connective tissue, but fusiform where it is limited laterally, as it is when it develops in the interstitial tissues of the myocardium. In rheumatic lesions of the heart degenerative and necrotic changes are not intense in degree. Emigration of leukocytes is moderate and diffuse, *mononuclear* types predominating.

Myocardium. — The nodules are closely related to *coronary arterioles.* There are more in the wall of the left than that of the right ventricle. Very few, if any, in the right. On the whole, the muscle-cells appear less altered than might be expected, probably owing to the relative coarseness of the staining methods.

Endocardium.—This shows the constant occurrence of nodules in the deeper parts of valves, the presence of a diffuse and mild mononuclear leukocytosis, the ultimate *vascularization* of the inflamed valve. The endothelium proliferates, the surface cells float off because of the degenerative changes, and the fibrin deposited in this stripped surface — sometimes mingled with leukocytes from the intracardiac blood — becomes permeated with new connective tissue *bearing young capillaries.*

Pericardium.—Here nodules have been found in all cases of active pericarditis, but not in the quiescent cases. So far they have not been seen at the parietal, but only in the visceral layer, where they are scattered over the cardiac surface. They lie at a varying distance beneath the endothelium, in which proliferation, superficial degeneration and stripping, fibrin deposit and capillary formation, as seen in endocardial endothelium, takes place. In the subendothelial tissue a moderate leukocytosis is seen.

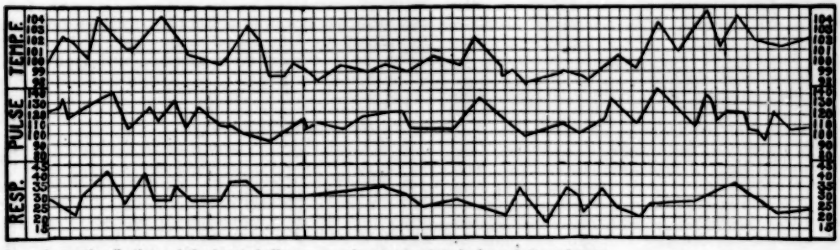
Other types of cardiac infection have been examined, by way of comparison with rheumatic carditis. In practically all cases of destructive endocarditis and purulent pericarditis, foci of inflammation are found in the myocardium, but in no such case has an inflammation of all three layers been seen. Furthermore, the inflammatory exudate has been characterized by a migration of leukocytes usually of the polymorphonuclear types, not by a proliferation of the cells of the part invaded.

It is within these *Knötchen* or submiliary nodules that numerous diplococci are readily found and may be easily cultivated. This adequately explains why, except in very virulent forms, we fail to obtain the organism from the blood by means of blood-culture methods.

In the light of the above consideration of the pathology of this disease, I believe that we are warranted in concluding that the microorganisms of rheumatism are carried to the valves by the coronary blood and not by that flowing through its chambers. In reviewing the literature and the recent text-books on his subject, I find that even most of those who believe in the infectious nature of rheumatic carditis think the organism is simply deposited on the valve by the intracardiac blood. Delafoy tries to explain that the reason why the left heart is selected is that the organism is an aerobe and thrives better in oxygenated blood. Strümpell still believes that the organisms are simply deposited by the blood-stream on the surface of the valves, but deems that an explanation is necessary as to how they stay there and are not swept off, being right in the midst of a swift blood-current—he calls in the phagocytic action of the endothelial cell which seize the bacteria and give them a firmer foothold. But why should the bacteria choose the valves? Do not the same phagocytic endothelia line the auricular and ventricular recesses, the little hooks and nooks among the chordæ tendineæ and musculi pectinati? Mural endocarditis should be far more frequent than valvular, which of course is not so. But, it will be said, the valves have no blood-vessels. How, then, do they get their nourishment? How would the presence of the *Spirochæta pallida* in similarly nourished structures, as the cornea in syphilitic keratitis, be explained? As to why the mitral valve is the one most frequently affected, I do not know. I believe that there will be no explanation forthcoming until we understand better the physiologic chemistry both of bacteria and of the tissues, and their interaction. The same factors that govern the selective action of bacteria in other parts of the body, regarding which we are still in profound ignorance, most probably enter into play here.

Can we explain why one attack of rheumatic endocarditis predisposes the individual to more and graver attacks? A glance at the pathology of the valve explains it. We have seen that rheumatic inflammation of the valve results in its vascularization, and hence during the next attack will admit organisms in larger quantities deep in the valve than it would in a normal non-vascular valve.

The toxin of the *Diplococcus rheumaticus*, unlike those of diphtheria and other bacteria, exerts but slight degenerative power on the heart-muscle. This particular poison exerts its deleterious action mainly by paralyzing the tonicity of the muscle, which loss of function is responsible for the fatal cardiac dilatation. Hence the elaboration of toxins by this organism is by far of greater importance than its production of the local inflammation.



from rheumatic affections of the heart, feeling worse when temperature is down, better when up.

Perhaps one of the earliest objective signs of rheumatic carditis is the mitral murmur. And yet, if we should examine the valve we would find that the local inflammation is but comparatively slight and entirely insufficient to account for early incompetence. The true explanation of this, as first pointed out by Gassage, lies in the fact that it is not the valves but a loss of tone in the mitral sphincter that is responsible for this leakage. The pathologic reason for such loss of tone—as we have seen above — is the development, especially near the mitral ring and near the root of the aorta, of inflammatory nodules. In such nodules, toxins would be elaborated and the lymph of the part would contain these toxins. Hence the muscle fibers of the mitral sphincter would be bathed in toxins, the special action of which is to diminish tonicity while the rest of the cardiac muscle would be much less severely poisoned, since the toxins must be absorbed in the general circulation in order to reach any fibers that are not in close proximity to the nodules. Thus in any rheumatic myocarditis an early loss of tone in the sphincter of the mitral valve would be expected, with the development of a regurgitant murmur. Nodules tend also to form near the root of the aorta; but the aorta has a fibrous connective tissue and not a muscular sphincter; therefore no change is pro-

duced during an attack of rheumatic fever. Thus an apical systolic murmur is the sign of rheumatic *myocarditis*, and is indeed quite often the only sign of inflammation of the heart apart from pericarditis.

The relation of the rate of the pulse to the temperature gives invaluable information as to whether or not the heart is affected. In the course of rheumatism, as a rule, there is an increase of ten beats for every rise of 1 degree of temperature. Where the increase in the rate of the heart is greater than that, cardiac involvement should be carefully considered.

Another peculiar phenomenon, the explanation of which is not by any means clear to me, is the peculiar relation of the temperature to the "well-feeling" of the patient. Particularly in the subacute and chronic cases of rheumatic affections of the heart of low vitality, which drag on for months and months, one frequently notices that, when the patients' temperature is normal or thereabouts, they feel and act ill. Should their temperature rise, however, they feel much better. I know that this sounds paradoxical, but it is nevertheless true. The accompanying chart of a boy, aged 15, suffering from rheumatic affections of the heart, is only one of many in my possession illustrating the above statement. He "feels fine" every time he has a rise in temperature. In fact, he himself has found it out, and "I have temperature to-day" is synonymous in his opinion with "I feel fine." Can it be that his heart and all the other cells of his body, particularly the cerebral, are stimulated to increased metabolism by a rise of temperature similar to the sensation of well-feeling accompanying the administration of alcohol?

As to our conception of the relation of simple rheumatic to malignant endocarditis, Venning has found that in a series of 100 autopsies of patients who have died from rheumatism with cardiac involvement, 61 per cent. presented signs of malignant endocarditis. That malignant endocarditis is quite frequent, as we commonly term it, engrafted on a damaged valve, we all know. I take "engrafted" to imply that after the rheumatic organism has damaged the valve and produced what we commonly term a *locus minoris resistentiæ*, either there is an invasion of pathogenic bacteria producing a mixed infection, or the invasion may take place after the exciting agent of rheumatism has disappeared. That this process sometimes takes place cannot be denied, but it appears to be rather the exception than the rule; for one does not see in these cases which pass imperceptibly from rheumatism into infective endocarditis a *sudden exacerbation*, but it is a long chronic illness, the patient gradually losing ground. As a rule, these patients do not come into the hospital until they have been sick for weeks and months and the average length of their illness in hospital is about two months.

The patient may, apparently, be recovering from the attacks of rheumatism and may lose all pain in the joints, yet nevertheless, from the after-history, the endocarditis must have been progressing insidiously. Thus there are several examples of patients who were admitted for acute rheumatism and improved to such an extent as to leave the hospital, but who have returned in the course of a month or so to die from infective endocarditis. The majority of these patients had suffered from rheumatism at some time previous to their illness, and so on admission had signs of endocarditis, and on post-mortem the valves showed old-standing lesions. The pathologic lesion is the same, excepting that it appears to be more intensified than that of simple endocarditis; and malignant forms represent but different degrees of one and the same process. That which causes simple may also cause malignant endocarditis.

The symptomatology and prognosis of this disease are well recognized and readily understood. As to the treatment of this condition, the salicylates are of undoubted value in the treatment of general rheumatic infections, amounting almost to specifics in some cases. The increasing and almost universal use of the salicylates in their various forms in the treatment of rheumatism proclaims their usefulness. The alkalies, the iodids, the magnesium salts, each have their enthusiasts. There are many more drugs employed with apparently brilliant success. But can anyone claim the same brilliant success with the use of these drugs in the treatment of the various manifestations of rheumatism of the heart, once that organ is affected? Can cardiac implication ever be prevented during the course of rheumatic infection by the use of these or any other drugs? While the salicylates are used universally, right from the onset of the disease, and as a rule in large doses—as they should be used according to present opinion—there are by far too many crippled hearts in the cemeteries (or on their way thither) and in the hospitals which testify negatively to both of the previous questions. It would appear that the solution must be made along the lines and principles of our modern conception of immunity, particularly by means of serums and vaccines. As yet my own experience with vaccines in these cases has not been sufficient to warrant any definite conclusion. Rest, a physiologic axiom, is the logical therapy and is well appreciated.

CONCLUSIONS

1. Rheumatism is a specific infectious disease caused by the *Diplococcus rheumaticus*.

2. The pathology of rheumatism is absolutely characteristic of that disease and of no other.

3. The valvular lesions are caused by the dissemination of the microorganisms by means of the coronary circulation, and these organisms are not simply deposited on the valves by the intracardiac blood-stream.

4. The cardiac murmur heard at the apex, even early in the disease, is never functional, but is due to a change in the myocardial mitral sphincter, which has lost its tonicity and hence dilatation of mitral orifice.

5. General cardiac dilatation, the most serious derangement in the disease, is due to the loss of tonicity of the heart-muscle, as a result of the selective action of this particular toxin on the myocardium.

6. A derangement of the pulse and temperature ratio is of diagnostic importance.

7. Rise of temperature is observed to have a relation to the feeling of well-being.

8. Simple and malignant endocarditis represent but different degrees of one and the same process.

9. Finally, we are at present helpless against the ravages of this most serious affliction.

I wish to express my deepest appreciation to Professor Van Cott for many helpful suggestions in the preparation of this work.

The Campaign for Better Food.—The determination of communities to have food that suits their health and gives their money's worth continues. Among a number of cities which are falling in line, *Collier's* mentions Providence, R. I., which is holding a pure-food and domestic-science exhibition from February 19 to March 12, conducted by the federated women's clubs of Rhode Island, and various butchers' and grocers' associations.

AN IMPROVED ESOPHAGOSCOPE

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The following are, in my opinion, the essential features of a practical working esophagoscope:

1. Simplicity of construction.
2. Ease of introduction without an obturator.
3. The source of illumination must be as near the object to be examined as possible, and so arranged that when instruments are introduced into the tube, the rays of light are not intercepted.
4. By some simple contrivance that can be easily operated the field of operation must be kept constantly dry, in order to enable the surgeon to work rapidly, thus reducing the length of the sitting to a minimum.

Fig. 1.—Esophagoscope. *A*, indicates suction tube; *B*, light carrier, running in the grooves *C*; *E*, detachable handle to fit in groove *D*.

I have made several hundred esophagoscopies and have tried different instruments with the various methods of illumination, at the proximal as well as at the distal end of the tube. I have also done some experimental work in this line, and the esophagoscope that I here present as an improved instrument has features in common with instruments well known on the market besides some new ones.

It has been my experience that the light at the distal end, i. e., as close to the object to be examined as possible, is the best for work through long tubes. The objection to this has been that the lamp may break and that it becomes easily soiled by mucus and blood. The first objection may be theoretically correct, but practically unimportant because if such an accident has happened it must have been extremely rare. The second objection is valid and of much importance, but it has been overcome in this instrument by having the suction tube A, Fig. 1, movable and so long that it can be pushed beyond the lamp and to the very end of the instrument. Furthermore, by connecting the suction tube *A* with a Chapman suction pump the field of operation is constantly kept dry. Another important feature is that the instrument is always introduced without an obturator under the guidance of the eye, so that the entire tract through which it passes can be inspected. For this reason the distal end of the instrument is provided with a thick protective lip. The two channels *C* are alike on both sides and open throughout so that the suction tube *A* and the light carrier *B* can be used on either side.

It is particularly to be noted that the suction tube is pulled back under cover of the tube while the esophagoscope is being introduced, or whenever the instrument is pushed forward. The handle is made detachable in order that it may be changed according to the position in which the patient is examined. The instrument is always introduced with the outer surface of its lip toward the epiglottis and the anterior wall of the esophagus, in this way entering with its widest diameter into the most easily distensible diameter of the canal through which it is to pass. Therefore, if the patient is to be examined in the sitting position the handle is put on the side of the instrument that has the lip, while if the patient is examined lying on the back the handle must be on the opposite side. The same handle can be used for the different tubes. It is not always necessary to use the handle.

I do nearly all esophagoscopic work in adults under local anesthesia with 10 per cent. solution of cocain and with the patient in the sitting position. If a general anesthetic is used the patient is examined while lying on the back or on the right side. In children the general anesthesia is always required. Figure 2 shows the patient in the correct position on a low chair with straight back and with the head supported by an assistant. The esophagoscope is shown in position and the suction tube *A* is connected by a long rubber tube with the Chapman suction pump attached to the water faucet and having a Wolff's bottle interposed for the reception of the mucus and blood.

If, in a case to be examined, there is a large quantity of fluid and remnants of food retained in the esophagus, this must first be drawn off by the stomach tube and the esophagus washed out before the esophagoscope is introduced. The suction tube is for the removal of fluids accumulating during the operation.

The introduction of this instrument is easy. The operator stands in front of the patient, and, holding the illuminated esophagoscopic tube near the proximal end with the right hand, places the lip of the instrument on the back part of the patient's tongue pointing somewhat toward the patient's right. While the operator now looks through the instrument it is passed over the epiglottis and down to the inlet of the esophagus. On gentle pressure the cervical part is entered and the open thoracic part of the esophagus soon comes into view.

Fig. 2.—Patient in correct position with the esophagoscope introduced and the suction-pump at work.

I never use any lubricant on the instrument and do not guide the instrument by inserting a finger into the patient's mouth. I always use a dry cell-battery for the illumination of the lamps. The street electric current should not be used whenever the instrument is connected with the water faucet.

Three tubes are required. One 10 mm. diameter and 50 cm. long, and one 10 mm. diameter and 25 cm. long,

both for adults; one 8 mm. diameter and 35 cm. long for children.

My operating instruments for esophagoscopic work are of corresponding lengths and have been previously described.*

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PHENOLSULPHONEPHTHALEIN AND FUNCTIONAL TESTS OF THE KIDNEYS

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My experience with the use of phenolsulphonephthalein commenced very shortly after Rowntree and Geraghty[1] began their experiments with it. I base my belief in its efficacy on a large number of cases seen in Dr. H. H. Young's clinic at the Johns Hopkins Hospital and in my private work.

I shall also consider here some of the other functional tests of the kidneys, and my purpose in taking them up is more to show their defects than to set forth their manner of use or for the observation of their individual values. I do this that the value of phenolsulphonephthalein may be more readily seen.

THE PHYSIOLOGIC FUNCTION OF THE KIDNEYS

The physiologic function of the kidneys is to eliminate from the body certain substances brought to them by the blood. This is generally supposed to be done by secretion, as defined by the Bowman-Heidenhain theory, rather than by diffusion and filtration as suggested by Ludwig. Without entering into the details of the discussion I shall merely state the following facts:

The kidneys have been shown by Bunge and Schemiedeberg[2] to synthesize hippuric acid from benzoic acid and glycocoll. The crushed kidney-substance is capable of this when kept under oxygen pressure.

No methylene-blue is found in the blood as such after administration, although it is being passed into the urine at the time, but a substance from which methylene-blue can be reconstructed. Neither is the methylene-blue as passed in the urine the same as that administered, for the latter is not soluble in chloroform while the former is.

When phlorizin is passed through the vessels of an isolated kidney sugar is found in the urine, thus showing that the action of phlorizin is on the kidney-substance itself.[3]

As evidence of the fact that the kidneys actually perform work when water is passing through them the enlarged kidneys of beer-drinkers have been pointed out, as well as the kidneys of those afflicted with diabetes insipidus.

I desire to emphasize the fact that there is a large variation in the normal output of the amount of urea, and nitrogen, and the other urinary constituents. This normal variation occurs, not alone in different individuals, but also in the same individual at different times, and is dependent, to a large extent, on the food and drink and the amount of exercise taken. There is, moreover, a variation in the urine, in the amount of the nitrogen, urea, sodium chlorid, specific gravity, etc., during the different parts of each twenty-four hours. This makes it evident that we must know the kind and amount of food an individual is eating as well as to obtain the total urine passed during a number of hours if we wish to come to any reasonable conclusion from a study of the normal urinary constituents.

In comparing the separate kidneys we find that the work normally done by one kidney is almost exactly similar to that done by the other during a given period of time as long as a half hour. There may be some slight variations during shorter periods of time.

THE NEED OF A FUNCTIONAL TEST OF THE KIDNEYS

The reason for most general interest in this subject is a need for a basis for more accurate prognosis in nephritis as well as some method of telling exactly the amount of destruction of the secreting substance of the kidneys. Anything enabling us to determine the future condition and probable length of life of our nephritic patients will, I feel sure, prove of immediate interest to all careful workers in medicine.

An accurate functional test will enable us to study the conditions of the kidneys in the various diseases, as well as assist us in our experimental work on their physiology.

The determination of the condition of the kidneys before serious operations such as carcinoma of the breast and uterus and prostate, prostatic hypertrophy, etc., etc., would enable us to foretell more surely the probability of the patient surviving the operation.

Last, but not least, there is a great need for some means of determining accurately and simply the condition of each kidney before operations on these so vitally important organs themselves.

FUNCTIONAL TESTS

The literature concerning the functional ability of the kidneys is very extensive, and an immense amount of accurate and valuable work has been done along this line. The blood as well as the urine has been carefully studied, most particularly for the urea and sodium chlorid, and by cryoscopy for the molecular concentration. The reason for the work on the blood is easily understood when we remember that the material passed into the urine depends, not only on the functional ability of the kidneys, but also on the material contained in the blood.[4]

Todd, in 1857, and Roberts, in 1865, wrote concerning the delayed elimination of certain drugs. Bouchard, in 1873, made some experimental observations regarding the elimination of fuchsin and since that time a large number of substances have been tried in attempting to discover some reliable functional test for the kidneys by their quantitative elimination in the urine. Among them may be mentioned quinin sulphate, potassium bromid, salicylic acid, potassium iodid, methylene-blue, rosanilin and iron subcarbonate. Besides these phlorizin has been tried for the elimination of sugar and much work has been done with cryoscopy, electrical conductivity, determination of the urea, nitrogen, phosphates and sodium chlorid.

Cryoscopy, methylene-blue, indigocarmin, phlorizin, the polyuria test and the determination of the amounts of the urea and nitrogen and the total solids have been the most widely used and have been considered by some to be sufficient for very accurate diagnosis, particularly where several were employed. I shall not attempt to

* Lerche, W.: Surg., Gynec. and Obst., October, 1910, p. 345.
1. Tr. Am. Assn. Genito-Urinary Surgeons, 1910.
2. Quoted in Howell's Physiology.
3. Biel and Kollsch: Quoted by Pasteau, Jr., in Méd. Francais, Jan. 15, 1911.

4. This points to the fact that absorption must have some influence on the quantitative elimination of any substance over a given period of time. A slow absorption must cause slowing in the elimination, while a rapid elimination could accompany only a rapid absorption. It seems evident, therefore, that for extremely accurate work on the elimination the substance would have to be given directly into the blood-vessels.

prove or disprove such statements, but simply set forth such facts as I have found. These various tests have, at least, served to lower the mortality of kidney operations as has been shown by Casper,[5] who compared the deaths after nephrectomies where they were and were not used. He found that in 129 cases without functional tests there were five deaths, while in a similar number of cases in which ureteral catheterization and functional tests had been used there was only one death. Chetwood,[6] in 1905, concluded that "the great progressive reduction in mortality is attributable to the diagnostic improvement. Marked differences in mortality . . . may be explained by the failure to employ the latest diagnostic resources." Kümmel[7] says that before the use of cryoscopy the mortality of renal surgery was 28 per cent., while afterward it became but 8 per cent., and after nephrectomy but 4.8 per cent. Improvements in surgical technic have, of course, to be considered, but one must feel that it can account for but a small part of the difference in the mortality statistics.

Since the two tests, cryoscopy and electrical conductivity of the urine, are related, in so much as both belong to physical chemistry, let us consider them first.

Cryoscopy.—By cryoscopy we mean the examination of liquids based on the principle that the freezing-point of solutions varies according to the amount and the nature of the substances contained in them in solution. By this method the osmotic pressure of a solution and the disassociation of the ions in the solution is determined. It is not a simple matter where we have only one salt in solution, and where we have complex solutions like the blood and the urine we would very naturally expect greater difficulty.

In cryoscopy of the blood we must consider that in uremia the osmotic pressure is not necessarily raised, nor is it necessary for uremia to be present where it is raised, for the products retained in uremia do not necessarily cause a rise in the osmotic pressure. Moreover, retention of water may occur without resulting in the usual corresponding retention of urinary solids and lowering of the osmotic pressure. On the other hand, water may be retained but with more than enough urinary solids to compensate for the amount of water.

A solution of urea, thirty parts to 1,000, gives the same freezing-point as a solution of sodium chlorid, fifteen parts to 1,000. The amount of sodium chlorid in the blood in nephritis is not constant, and a small diminution in the sodium chlorid may, therefore, compensate for the large increase in urea.[8]

That this method is of some value is rather generally admitted, but it cannot be considered sufficiently accurate to be of much assistance to the more exact clinician. Sahli[9] decides that a renal insufficiency may be surely concluded from a distinct elevation of the osmotic pressure of the blood which would, for example, contraindicate the extirpation of one of the kidneys.

In the urine, as in the blood, a difference in the amount of sodium chlorid and urea would make a marked difference in the freezing-point, and small differences in the amount of sodium chlorid would compensate for much larger changes in the amount of urea. Furthermore, since the electrolytic substances are more strongly disassociated in dilute solutions than in more concentrated ones, it would be necessary for the urine to be of the same concentration through the twenty-four hours of collection to enable us to learn the work done by the kidney in that time, if we are going to make our computation from the number of ions passed by the kidney.[9]

Electrical Conductivity.—Electrical conductivity is a measure of the disassociated ions, or electrolytes in solution. In the blood or urine it is practically a measure of a few salts, more particularly of the chlorids. It is not influenced by the urea, or by sugar or albumin.

While it is true that there is a retention of the chlorids in lessened functional ability of the kidneys, there is nothing constant about it, even where definite doses are given. In estimating the functional ability of the kidneys by this method the blood should be examined as well as the urine.

Withal, the test is performed with no little difficulty, and has the disadvantage of being without a stable foundation, such as a definite normal output of the substances on which the results depend.

Methylene-Blue.—This stain was introduced for this purpose by Achard and Castaigne[10] in 1897 and is still used, more particularly by foreign observers, in connection with some of the other functional tests. It is supposed to be a test of the renal permeability rather than of the secretory ability as tested by phlorizin, but it is to be remembered that no methylene-blue is found in the blood at the time that it is being passed into the urine.

The time taken for complete elimination of a hypodermic injection of 15 minims of a 5 per cent. solution is from thirty-six to forty-eight hours. The time of appearance is within fifteen to thirty minutes. The elimination is at first in the form of a colorless chromogen but in a few minutes the blue appears. Only about one-half of the total amount given is recovered in the urine and at least one case has been reported in which no methylene-blue at all appeared in the urine, although it was given for some time for medicinal purposes. In cases of acute and chronic parenchymatous nephritis the elimination may be more rapid than normal. The maximum intensity of the blue in the urine is reached normally in the third or fourth hour.

Besides consuming much time the test is often inaccurate, and, as Emerson says, too many cases with kidneys found at autopsy to be the seat of extensive disease have reacted normally or with abnormal rapidity.

Indigocarmin.—As was shown by Heidenhain the indigocarmin is excreted by the cells of the convoluted tubules. Since 1903 it has been used as a functional test of the kidneys. Only about one-fourth of the dose given, however, is recovered in the urine in from twelve to twenty hours. The time of first appearance is short, being within from six to ten minutes. Twenty c.c. of a saturated solution is the usual amount given. The method of determination of the amount eliminated is inaccurate. The elimination is observed over periods varying from one to three hours.

The test is still used in some of the best clinics but is not believed to be very accurate and is not used alone but usually in combination with one or two other tests.

Rosanilin.—Very little reference has been made to the use of this substance which has never become popular as a functional test, although it seems much better for that purpose than many of the others. It is eliminated almost completely by the normal kidneys; the output

5. Quoted by B. Barringer in Surg., Gynec. and Obst., December, 1908.
6. Chetwood, C. H.: Physician and Surgeon, 1906.
7. Quoted in Emerson's Clinical Diagnosis, 1906, p. 306.
8. Strauss: Chronischen Nierenkrankheiten, Berlin, 1908.
9. Sahli: Diagnostic Methods, Ed. 1905.
10. Achard and Castaigne: Bull. et Mem. Soc. méd. d. Hôp. de Paris, April, 1897.

varies between 65 and 95 per cent. The chief objection to its use seems to be the time required for the elimination. The first appearance in the urine after hypodermic injection is within thirty minutes, but the point of maximum intensity is not reached before the third hour, and total elimination is complete in about twenty-four hours.

The substance was introduced by Lepine and much subsequent work was done by Dreyfus and Pugnat.[11]

Phlorizin.—This substance was used by Klemper,[12] in 1896, to show that such a thing as renal diabetes could exist. Zunst[13] had already shown that phlorizin injected into one renal artery produced sugar in the urine coming from that kidney some minutes before it appeared in the other side. As I have already said, sugar is found in the urine when phlorizin is circulated through the vessels of an isolated kidney. It seems evident that the test is one of the secretory ability of the kidney.

Achard and Delmare used hypodermic injections of 1 c.c. of a 1-to-200 solution while Albarran used 4 c.c. of the same strength solution. The sugar appears in the urine in about a half hour and disappears in from three to four hours.

The results obtained vary; normal cases may pass no sugar at all or there may be a marked diminution in the amount with only mild lesions so that one is not able to learn conclusively the condition of the kidneys from the quantitative elimination.

Although the results are not so accurate, the test has, like some of the others, been of no little value especially when used in conjunction with some of the other methods.

The Estimation of the Total Nitrogen and Urea.—Although some workers have had great faith in the value of the estimation of urea or nitrogen, or of both, these tests have in the hands of the majority of the observers given results which have shown that they were not to be depended on for any very definite information concerning the absolute functional ability of the kidneys.

In the first place, these methods are rendered complicated by our having to know the exact diet of the subject. We must also have a twenty-four-hour specimen of the urine.

In unilateral collections, where it is as a rule inadvisable to leave the catheters in the ureters for so long a period as twenty-four hours, the only information we are able to obtain is concerning the output of one kidney as compared to that of the other over a given period of time. We cannot determine the absolute ability of the kidney by such short collections, but we could come to much more valuable conclusions if we should determine the amount of urea present in the blood at the time of the collection of the urine.

One of the objections offered to the use of the determination of the urea is that there is no sufficiently accurate simple test available, and another is that the results obtained with the Doremus instrument are considerably influenced by the presence of pus. Both of these accusations are wrong, as I have proved to my own satisfaction. The Doremus instrument when properly used is accurate enough for all purposes and there is practically no difference in the amount of urea found when two specimens of the same urine are used, one being freed from pus.

The determination of nitrogen or urea seems of undoubted value where we have no simpler test such as phenolsulphonephthalein, and I believe that the results obtained by the determination of the total nitrogen and urea give more accurate and valuable information than is generally believed.

In some experiments made by A. I. Murphy of Pittsburgh and myself, we found a constant relation to exist between the amount of water drunk and the amount of urea passed in the urine. The more water taken the more urea was passed. The specific gravity was inconstant and bore a somewhat irregular relation to the amount of urine secreted. The paper is to be reported in full by Dr. Murphy.

The Specific Gravity and Total Solids.—The normal specific gravity of the urine varies between 1,015 and 1,020 at 15 C. The drinking of large quantities of water may lower it to 1,002 or 1,003.

It is an accurate indication of the amount of solids which have been passed into the urine by the kidneys, but not a very accurate indication of the functional ability of the kidneys. We can increase the value of our results considerably if we know the amount of water drunk, the kind and amount of food ingested, and the amount of water lost by sweating and breathing, since there is a marked variation in the results when these things vary.

A twenty-four-hour specimen is always necessary, since there is so much variation in the separate specimens voided during the different parts of the twenty-four hours. The urea is the substance which influences the specific gravity the most.

In making collections from each kidney separately it is seldom feasible to leave the ureteral catheters in for twenty-four hours, so we can use only the specific gravity and total solids in these cases to compare one kidney with the other.

The same objections expressed against the results obtained with the use of the specific gravity can of course be used for the total solids.

The Polyuria Test of Albarran.—This test was introduced in 1904 and is applied to the collections from each side separately as well as from both kidneys at once.

The urine is collected for fifteen minutes before the test is begun, so that a reflex anuria, caused by the presence of the catheter, will not be overlooked. Phlorizin or some of the other substances are now given so that they may be tested for at the same time, and the urine collected for half an hour. The patient now drinks from 400 to 600 c.c. of water and the urine is collected for three hours being separated into half-hour collections. The quantity of urine is normally increased during the second half-hour after the water is taken and reaches the maximum during the following one, the third. Then the amount decreases rapidly. Where there is disease on one side the polyuria on that side is supposed to be diminished according to the extent of the lesion.

From this test we can, as a rule, gain an idea as to which one of the kidneys is functioning better, as well as some knowledge of the maximum working ability of each, especially when the test is used in conjunction with some of the other methods.

Some objections have been made, however, to the use of this test, and also to the results obtained thereby. The long period of three hours is too long for the com-

11. Lepine: Lyon Médical, 1898.
Dreyfus: Thèse de Lyon, 1898.
Pugnat and Revilliod: Arch. gén. de méd., 1902, viii, 19. Quoted by Rowntree and Geraghty.
12. Cited by Achard and Delmare.
13. Arch. f. Anat. u. Physiol., 1895, p. 570. Quoted by Cushny.

fort of the patient, and the convenience of the physician. This large amount of water cannot always be borne by the patient. As Geraghty and Keys, Jr.,[14] have both found, it is not always possible to cause a polyuria; this fact is of considerable importance when a polyuria already exists on the diseased side, which is sometimes the case. There is some question as to whether the polyuria test would show the presence of localized lesions of small size, such as are sometimes found in tuberculosis, hypernephroma, etc.

PHENOLSULPHONEPHTHALEIN

The pharmacologic action of phenolsulphonephthalein was first tried by Drs. Abel and Rowntree, having been sent to Dr. Abel by Dr. Ira Remsen, who was the first to prepare the substance; Dr. Abel was at this time working with some of the phthaleins in connection with their use in chronic constipation and it was sent to him on that account. The substance was found to be eliminated from the body almost exclusively by the kidneys, and was not toxic even in quite large doses. No lesions could be demonstrated in the kidneys from its use, although a careful study of the urine was made as well as microscopic examinations of the kidneys themselves. These results very naturally led to its being tried in estimating the functional ability of the kidneys and the conclusions arrived at by Geraghty and Rowntree,[15] in using it for such a purpose, were first published in July, 1910.

The solution used is a bright red color, being prepared from the crystalline drug by the addition of certain amounts of sodium hydroxid and normal salt solution.[16]

Most of my experience with the administration of this substance has been in cases of urinary obstruction, renal tuberculosis and lithiasis, a large number of normal cases and a few cases of renal hematuria, and a few cases of ureteral obstruction and chronic pyelitis.

The size of the dose now given is 6 mg., which is contained in 1 c.c. of salt solution and is given intramuscularly or subcutaneously. The urine is collected for two hours after the first appearance in the urine, and the hourly specimens are kept separated. Where ureteral catheterization is employed collections may be made for only one hour.

In a recent article by Rowntree and Geraghty,[17] they recommend the injection of the dye into the lower lumbar muscles. In such cases there is an output of from 5 to 10 per cent. more in the first hour than when it is injected subcutaneously. They have also done some work with intravenous injections, but recommend intramuscular injections for ordinary use.

A colorimeter is used to determine the amount of dye put out in a certain specimen of urine. For very accurate determinations the Dubosque instrument is the one we have used, but there is now on the market a simpler and much cheaper instrument which is sufficiently accurate for all purposes. A simpler method still is the use of graduated or ordinary test-tubes. A standard solution of 3 mg. to the liter is used for comparison.

For the injections, any syringe by which 1 c.c. can be accurately measured can be used. The original work was done with the Record syringe.

The time between the injection and the first appearance of the dye in the urine is in normal cases between five and ten minutes, as a rule. Variations in the time within these limits seem to make very little difference as far as we now know. Some few cases may take as long as fifteen minutes and yet put out from 60 to 70 per cent. The cases I have seen which took longer than this failed to put out normal amounts. Some few cases taking as long as from thirty to forty minutes had a total output which was extremely low, and usually only a faint trace appeared in the specimen collected during the first hour, and subsequent autopsies showed that the kidneys were considerably diseased. It is interesting to note that many of the cases with low outputs showed more dye in the second-hour specimen than in the first. Where there is urinary obstruction the time of first appearance must be noted by the introduction of a catheter into the bladder. The catheter may be left in the urethra throughout the test unless it is too uncomfortable. Where the patient can empty the bladder by voiding, the time of first appearance may be noted by having him void every five minutes.

A small amount of a 20 per cent. solution of sodium hydroxid is added to the urine in all cases, for the dye does not show up distinctly unless it is in a distinctly alkaline solution.

The output in normal cases in which the injection is made subcutaneously is from 40 to 60 per cent. for the first hour and from 20 to 25 per cent. for the second hour.

To insure a free diuresis two or three glasses of water are given to the patient during the half hour preceding the injection of the phenolsulphonephthalein. This is done in all cases in which it is possible for them to drink water. The amount of urine output, however, seems to have very little influence on the output of the dye, for in one case 40 per cent. was recovered in 5 c.c. of urine.

URINARY OBSTRUCTION IN THE LOWER TRACT

The results obtained by the use of this test in cases with urinary obstruction below the bladder, more particularly from prostatic hypertrophy and carcinoma, have proved very valuable.

As is well known, the functional ability of the kidneys is seriously impaired by urinary obstruction and the presence of residual urine in the bladder. The amount of impairment seems to correspond to some extent with the amount of residual urine, but more particularly with the duration of the obstruction and the severity of the infection of the urinary tract and the amount of hydronephrosis.

I have seen the impairment so marked in a few of these cases that the output for the first hour was only from 2 to 3 per cent. and for the second hour, from 8 to 9 per cent. In such cases the determination of the total urea and the total solids in twenty-four-hour specimens has not always assisted us in determining the functional impairment, for in some cases these may show but little decrease, even though the patient is clinically uremic. In one patient, dying without operation, these substances remained nearly normal up to the time of his death, though he was vomiting and nearly unconscious; only a trace of phenolsulphonephthalein was found in his urine at any one time although he was given several separate tests. On the other hand, I have never seen a case showing clinical signs of uremia which did not show a marked fall below normal in the amount of dye recovered, or a decrease from any deter-

14. Keys, Jr.: Ann. Surg., March, 1910.
15. Geraghty and Rowntree: Jour. Pharm. and Exper. Therap., July, 1910.
16. This solution can now be obtained from Hynson and Westcott Co. of Baltimore. It is put up in small ampules containing a little over 1 c.c., so it may be kept without fear of deterioration.
17. Rowntree and Geraghty: THE JOURNAL A. M. A., Sept. 2, 1911, p. 811

mination made when the clinical condition of the patient was better.

These cases show in most instances an increase in the amount of dye eliminated after they have been under proper treatment for shorter or longer periods. This is quite marked in some and may be as high as 25 per cent. of the individual dose. Some cases never put out more than 20 to 25 per cent., or less, even after prolonged treatment, but are then better operative risks than those having similar, or larger, outputs and who have not been under treatment; for the functional ability of the latter may be rapidly decreasing while that of the former is at the highest point and stable. For this reason several tests with the dye should be given in those cases which show some impairment at the first test.

The use of phenolsulphonephthalein in these cases has confirmed the fact that there is great value in properly instituted treatment before operation by evincing the improvement in the functioning of the kidneys, which may occur under such conditions. Moreover, we are able by this method to select the best time for operation and render recovery more rapid and certain, and lower our already low mortality rate. Our prognoses, too, have a more rational basis and we can more intelligently instruct the postoperative patients about the future care of themselves.

EXAMINATION OF THE FUNCTION OF EACH KIDNEY SEPARATELY

In the unilateral or bilateral lesions, where we desire to know the ability of each kidney, the use of phenolsulphonephthalein has proved, if anything, more valuable than in the just-discussed class of cases, for here we are confronted by conditions which often make it desirable or necessary to remove one of the kidneys and the question arises as to what is the condition of the other kidney. For the determination of this point catheterization of the ureters is by far the most satisfactory method of collecting the urines separately.

Should it be found impossible to introduce the catheter into one side, the urine may be collected transvesically from that side by introducing a small catheter into the bladder. In some cases, in which the ureters have been catheterized, leakage into the bladder is very annoying, although the proper size and kind of catheter has been used. Where the leakage corresponds to one side which is doing considerably more or less work than the other side we are not at a loss in making our conclusions. In some other cases we can arrive at no satisfactory conclusion, but, fortunately, these cases are rare.

The time of first appearance is, of course, the same for normal cases here as for the collection from both sides at once. There may be a slight difference in the two sides, but as yet this is not considered of any importance where the reading for the two hours is the same. Reflex anuria caused by the presence of the catheters is usually of short duration but it may last a half hour. The injection of the dye should not be made until the urine is flowing from the catheters as freely as expected from previous observation.

The amount of drug eliminated very accurately indicates the amount of destruction of secreting substance. This has been proved by the examination of about fifty cases in which the kidney was observed at operation in a few, and after removal in the remainder.

I would like particularly to call attention to those cases with one-sided kidney disease and the pain confined entirely, or almost so, to the healthy and hypertrophying kidney. In some of these cases the diseased kidney may be almost completely destroyed; if such be the case, simple ureteral catheterization would be sufficient to determine that only one kidney was working. Where the destruction is not so marked, however, the phenolsulphonephthalein is of immense help. The healthy kidney of such cases has been explored on account of the pain, but ureteral catheterization had not been resorted to.

Not infrequently we are confronted in renal lithiasis by conditions which demand the removal of the kidney from which we merely intended to remove the stone. There are, for example, kidneys from which we are unable to remove completely all of the particles of stone, or ureters strictured beyond remedy. Though we may feel sure from an *x*-ray picture that there is no stone in the other kidney or ureter, yet how can we tell without investigating its functional ability that we are not dealing with a kidney deficient from an old nephritis, an infantile kidney, or a kidney the seat of polycystic change?

It is in the cases of lesions in both kidneys that we have the most trouble to determine what to do for the patients. In tuberculosis or other destructive infections of the kidney-substance we have to consider the influence of the general toxemia on the better kidney. In most of the cases of this kind, so far seen, the removal of the diseased kidney has resulted in an increased output from the remaining one, usually exceeding the total output from both kidneys before operation. In double-sided renal lithiasis the test is of considerable help in determining the better kidney so that our first operation can be done on the more diseased one, and thus avoiding, as far as possible, a postoperative uremia.

According to the amount of phenolsulphonephthalein recovered in cases of chronic pyelitis there is very little disturbance of function. There seems also to be very little reduction in the amount of dye put out where there is an acute pyelitis, therefore the test should help us to distinguish between the more serious condition of kidney abscess and an acute pyelitis.

In the more recent article by Rowntree and Geraghty[17] the use of phenolsulphonephthalein in nephritis is discussed and shown to be of great value.

CONCLUSIONS

Up to the time of the introduction of phenolsulphonephthalein there was no single way or test, by the use of which we could gain an accurate idea of the functional ability of the kidneys. By the use of several of the best-known tests we were able to come to some valuable conclusions which, however, were not always accurate and gave results which were not in accord with those usually obtained. Moreover, there were certain pathologic conditions of the kidneys in which none of the tests would give us the desired information. The length of time required for some of the tests and the extensive observations required with others made their general use impracticable.

Now, in phenolsulphonephthalein, we have a substance which is non-toxic, rapidly appearing in the urine, quickly eliminated by the kidneys without any deleterious influence on them, and the amount passed is rapidly, easily and accurately determined by the colorimeter. The time required for the test is short, therefore the patient has less to suffer and the administrator less time to wait.

The amount of dye eliminated shows us accurately the extent of impairment of the kidney. There is, moreover, no pathologic condition of the kidney in which there is an increased permeability to the drug. The amount of dye passed does not depend on the amount of urine in which it is passed; 40 per cent. has been recovered in 5 c.c. of urine.

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A CASE OF CHRONIC PARALDEHYDISM *

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The infrequency of chronic paraldehydism warrants the report of this case. I know of but three other cases reported in literature. This patient first came under my observation in the psychopathic wards of the Philadelphia General Hospital under the services of Dr. F. X. Dercum, with whose kind permission this report is made possible. In these wards one has the opportunity of studying many cases of alcoholic addictions, as well as morphin, laudanum, cocain and opium habits acquired by individuals. Less frequently are seen patients with the craving for other drugs, as caffein, strychnin, chloroform and acetanilid.

On account of the symptoms and nervous manifestations noted in this case, I was led to believe that it was due to some cumulative toxic action of some other drug than those classed in the above category. Close questioning, however, revealed that I was dealing with a case of chronic paraldehydism.

Paraldehyd is a product obtained by the action of dilute sulphuric or nitric acid on an aldehyd. It is a colorless liquid with an ethereal odor and disagreeable pungent taste. It is readily soluble in alcohol, but less so in water. It is a reliable hypnotic and nervous sedative, being almost equal in its soporific effects to chloral, though its action is less persistent and requires a more frequent repetition in its administration than chloral. It causes a sensible fall in arterial pressure, but is not so depressing to the heart as is chloral. It strengthens and slows the heart action, instead of weakening it. It produces a sound sleep which is refreshing to the patient. It is a useful hypnotic in insomnia from various causes, particularly in fevers, mania and hysteria, and has been used successfully as an antispasmodic in asthma and in the treatment of tetanus. It has no analgesic properties. Its disadvantages are that it has to be given in comparatively large doses and it has a disagreeable taste and odor. The dose of paraldehyd is from 20 minims to 2 fluidrams; but the latter quantity has frequently been exceeded without any ill effects. Very few cases of poisoning resulting from this drug are recorded. In one case on record the patient recovered from a dose of 3½ ounces after thirty-four hours of sound sleep. (MacKenzie, Douglas, Isle of Man.)

Chronic paraldehydism is infrequently seen. The individual presents a train of symptoms not unlike those observed at times in delirium tremens. Tremulousness, restlessness, mental anxiety and agitation with incoherent speech are most frequently noted. Emaciation, anemia, gastric derangements and cutaneous eruptions are also observed.

REPORT OF CASE

Patient.—J. R. T., white, American, aged 47, salesman, was admitted to the hospital Oct. 15, 1909, with chief complaint of insomnia and nervousness. He had been using alcohol for a long time, but never to excess; used tobacco to excess. He had a brother in an insane asylum suffering from recurrent mania.

The patient dated his present trouble to five years before admission when he was in a hospital for treatment for insomnia, from which condition he had suffered for the past twenty-five years. While in the hospital he received 1 fluidram of paraldehyd at bedtime with the desired result of a sound sleep. After four weeks' stay in the hospital he was discharged as cured of his insomnia. For the next three years he abstained from the use of paraldehyd. The insomnia then recurred and he gradually began to resort again to this drug to alleviate sleeplessness. At first 1 fluidram sufficed to induce sleep, but gradually he increased the dosage until during the year previous to admission he became so enslaved to the drug that he took on the average of 2 fluidounces daily to produce the desired hypnotic effect. After each such dose he felt intoxicated, this being followed later by a state of contentment; a panorama of beautiful pictures and recollections of pleasant things, long forgotten, passed through his mind in rapid succession; he felt exhilarated and appeared stronger. He had not noticed any ill effects from its use on the stomach but had observed a tendency toward looseness of the bowels. A sound sleep would generally follow the administration of 6 or 8 fluidrams of the drug and on awakening his head would always be clear. Though his hands and feet perspired, yet they felt cold.

Examination.—The patient was a small, stockily built white man apparently much older than his years. He was very restless and continually interrupted to ask questions. While in bed he refused to lie down, but sat up and was forever taking notice of his environment. His face was erythematous, the small capillaries were markedly dilated and there was a prominent cyanotic tinge to the facies. The nose had the appearance of an acne rosacea. The hair was thick and almost gray, skin warm and moist. His eyes were of medium size and reacted to light and accommodation. A prominent arcus senilis was present. The vessels over the entire body showed evidence of an existing arteriosclerosis. The lymph-glands and muscles were normal. The patient showed a fine tremor of fingers, lips, tongue and facial muscles, much more marked than is commonly seen in alcoholics. The hands were cyanotic, fingers broad and clubbed. The buccal mucosa was congested. The tongue was dry, coated and fissured, large and centrally protruding with fine tremor. The teeth were in bad state of preservation. The chest was rounded and barrel-shaped. The skin over the thorax was mottled and showed some acne lesions. The lungs and heart were normal; the abdomen flabby and distended, liver and spleen were not palpable. Ophthalmoscopic examination of the eyes, and examination of urine and blood proved negative.

On the evening of admission insomnia was marked. The patient slept but a half hour at a time, although under the influence of powerful hypnotics, as the following which was repeated three times during the night:

	Gr.
Sod. bromid	xxv
Chloral hydrate	xv
Hyoscin hydrobromid	1/100

During the entire night he was restless and constantly craved for a drink of paraldehyd. He drank large amounts of water and expectorated freely. The following night the same treatment was administered, but with very slight effect on the insomnia. He remained in the hospital for one week and was discharged with no perceptible improvement in his condition.

* Read before the Philadelphia Psychiatric Society, Nov. 16, 1911.

Age of Parents and Expectancy of Life of Children.—The expectancy of life of those born at the maturity of the parents is about fifty years, and at the extremes about half that figure. Now, as the object of reproduction is to reproduce, births in these late years are in a collective sense valueless.—R. J. Ewart in *Eugenics Review.*

SHORTENING AND ADVANCEMENT METHODS WITHOUT EMPLOYING SUTURES UNDER TENSION

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I was led to attempt to devise new methods of shortening and advancing ocular muscles, first, by the great variety of such methods, indicating that no one is entirely certain of results, and, second, by the constant repetition of the necessity for marked overcorrection to allow for subsequent slipping.

The great defect in all methods of which I have seen descriptions is that the sutures are under the elastic pull of the muscle, thus violating one of the important principles of surgery in relation to suturing. The problem, then, is to devise methods in which either (1) no suture—in the sense of being employed to hold two parts together—is used, or in which (2) if such sutures are used, they are so supported as to be under no tension. At first thought one is tempted to believe that the above propositions are impossible but, in my opinion, the methods here described will prove to be satisfactory solutions.

The solution of the first proposition was suggested to me by the method of shortening saddle-girths employed in the military service. The girth is made of many strands of horse-hair rope. The shortening is done by looping each strand about a piece of rope run transversely. The two marginal strands are fastened securely and the girth is shorter an amount equal to the circumference of the rope. The only force acting on the rope is one of constriction and there is no cutting force acting on the strands of the girth. There can be no slipping as the greater the pull the more secure is the point of shortening.

This principle may be applied to an ocular tendon as follows in the following manner:

1. Expose the entire tendon to clear view.

2. Elevate tendon on a spatula, about 1 cm. in width, which will flatten out the tendon and aid materially in the next step of the procedure.

3. Divide the tendon longitudinally, preferably by a blunt separation of the fibers, into four strips of equal width.

4. Loop a strand of twenty-day chromic catgut around each strip of the tendon, as shown in Figure 1. This will be more easily passed if made flexible by moistening.

5. Throw slack into the tendon by any convenient means such as a Prince forceps. While held thus the catgut is straightened till taut. This will throw around it a loop of each section of the tendon, as shown in Figure 2; the four loops should then be slid along the catgut till in contact with each other.

6. Secure each marginal strip, as shown in Figure 2, which will prevent those strips from becoming unlooped. Tie ends of catgut over the tendon, but not tight enough to bunch it, thus avoiding any constriction. The tendon will be left flat and about its original width. Close conjunctival wound.

It is evident that the tendon is shortened by the circumference of the catgut, therefore the amount of such shortening may be varied according to the size of the gut or by the number of strands used. It is also evident that there is no tension on the catgut, consequently there can be no tendency for it to cut the tendon. The latter can, of course, stand the slight increase of tension when unaccompanied by cutting, in fact such increase renders more secure the point of shortening. This fact renders unnecessary the bandaging of both eyes which is a great advantage.

The shortening is equal throughout the width of the tendon. By dealing with each half separately, however, the shortening may be made unequal if correction for cyclophoria is indicated. A doubtful point is the possibility of the loops straightening on the absorption of the catgut, but there is no reason why cicatrization should not be as prompt and secure as by any suture method.

The amount of shortening necessary to correct even great defects is but little if permanent. For instance, a permanent shortening of 3 mm. is equivalent to 14 degree of arc. Catgut 1 mm. in diameter, therefore, will shorten the tendon 3 mm. This, however, does not mean an equal shortening in the total length of the muscle, owing to the stretch of the muscle-tissue. If a muscle is very weak the pull of its more powerful opponent may even stretch it and reproduce the original defect. For this reason I favor a partial tenotomy of the more powerful muscle by the method shown in Figure 6. The cut near the insertion is a central partial tenotomy including all but two or three fibers at each margin. The effect is graduated by the length of the lateral cuts, and one equal to a complete tenotomy may be obtained as well as very slight effects suitable for low degrees of heterophoria. I devised this method several years ago and have used it with excellent results in many cases.

It remains, therefore, for experience to determine how much shortening of the entire muscle can be expected from a definite shortening of its tendon. This, as mentioned before, would depend on its tone and strength as compared to that of its opponent. The slight possibility of the loops straightening on the absorption of the catgut led me to consider the second proposition and to solve it in the following manner:

1. Expose entire tendon and raise on spatula.

2. Separate from each margin of the tendon a strip about 1.5 mm. in width.

3. Place a loop of twenty-day chromic catgut (made flexible by moistening) about each strip, as shown in Figure 3. Care must be taken to have it in the center of the tendon when drawn moderately snug, otherwise there may not be enough tendon available to make the loops.

4. Slack the tendon and, while held so, straighten the catgut by pulling its two ends in the directions indicated by the arrowheads in Figure 3. This transfers the double half hitch from the catgut to the tendon. Slide the two loops of the double half hitch into close contact. Then, still holding the slack, tie the catgut snugly over this double half hitch, but without constriction, as the gut is not intended to take any tension, but simply to prevent the double half hitch from straightening; with large sizes of gut the knot will be quite large. In my case No. 3 was used, and while the knot was large it was easily covered by the conjunctiva and caused no particular trouble.

5. The central section of the tendon is now slack by the amount of shortening of the margins and may be tucked or advanced by any method preferred, and the sutures employed will be under no tension unless the attempt is made to exceed the marginal shortening. I prefer to pass this holding suture of 00 chromic catgut exactly as in Verhoeff's method of advancement, but

through the point of insertion instead of the sclera. This suture should simply hold the tendon in close contact with the globe, carefully avoiding undue constriction. It seems to be proved that an advanced tendon becomes attached back to the original point of insertion, therefore there is no use in placing the holding suture near the cornea, the same result being secured by bringing a point farther back on the tendon up to the line of insertion. The concluding procedure, of course, is to suture the conjunctiva.

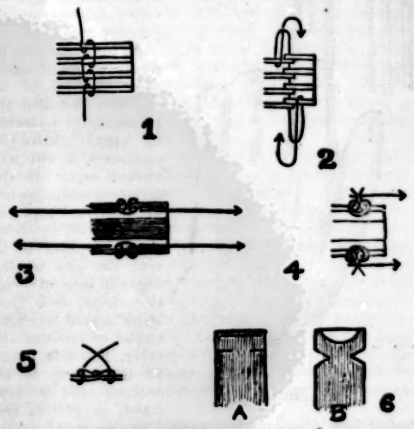
The double half hitch in the tendon will probably become a double loop, as shown in Figure 4, but it cannot straighten because of the knotted catgut. This may be proved by using two pieces of string to represent tendon and catgut. When tied as described, the pieces representing tendon will break without slipping; consequently the weak pull of the muscle can have no such effect. Therefore the shortening is equal to twice the circumference of the catgut employed. With No. 3 catgut, which is about 0.75 mm. in diameter, we would shorten the tendon about 4.5 mm. This should be sufficient, in almost any case, to support the central section of the tendon as it is certain there can be no slipping until the chromic catgut is absorbed. Long before that occurs, the central section should be firmly attached and will serve to support the marginal strips, should they need it, which is very unlikely. In any deviation requiring a greater shortening than 4.5 mm., the effect should be divided between the two eyes. With this method, as in the first, the amount of shortening may be varied equally or unequally, according to the indications for cyclophoria.

For equal sizes of catgut, however, it gives double the shortening because two loops are made. If, in correcting for cyclophoria, only one loop be desired, the method of finishing the catgut to prevent straightening of the loop is shown in Figure 5. As in the first method, and for the same reason, only the eye operated on need be bandaged. Both operations may therefore be called office operations. Because the suture is free from tension so long, thus giving good chance for firm attachment, it is thought that but little overcorrection will be required and that only for the stretch of the scar tissue and of the muscle.

All things considered, it is thought that this method is preferable to the first, although a little harder to perform. The best feature is an attachment to the globe which is under no tension, even when the muscle is in action. When we learn to estimate closely the amount of shortening to expect in an entire muscle from a definite shortening of its tendon, we shall be able to figure mathematically the size of catgut to use and the number of loops to make. At least, by this method we eliminate one great cause of uncertainty in results, namely, the slipping that so frequently occurs in the first few days after the operation. It is thought the final stretch of the scar tissue will be less, as the point of contact is free from tension for so long.

After working out the details of this method on rubber-band models it became necessary to find a suitable case. A Mexican was soon found with a blind exotropic eye (10° arc). He gladly consented, in order to have his personal appearance improved. The second method was used, as considerable effect was desired all in one eye. It was rendered more difficult than usual by a vascular pterygium. As far as the peculiar technic of this method is concerned, no difficulty at all was encountered, in fact, in my opinion, it is easier than the scleral stitch methods and not so painful. The marginal strips looped easily. The central section was slack and easily sutured without tension to the line of insertion, being shortened about 4 to 5 mm. In order to give the method as severe a test as possible, only the eye operated on was bandaged and the patient was allowed to get off the operating table and go to work at painting, in fact he stopped only while the operation was being performed, for he was at the time engaged in painting the hospital operating room. On the second night he got drunk and was so disorderly that confinement in the guardhouse was required. In spite of all these unfavorable conditions there was no slipping whatever.

It is thought that this operation combines the advantages of the tuck and advancement without the disadvantages of either. It may prove to be a good plan to so modify the above-described technic as to include the Tenon capsule in the shortenings. This could easily be done by making an incision through it along each border of the tendon and by then treating it as a part of the tendon. This would save the trouble of dissecting it from the tendon, which procedure frequently is accompanied by troublesome hemorrhage.



Figs. 1-5.—1. Method of passing loops. 2. Catgut loops, to be drawn snug before ends are tied. 3. Method of placing double catgut loops. 4. Double loop transferred to tendon strips. 5. Catgut loops, to be drawn snug and ends tied. 6. A shows diagram of incision; B, the effect.

In case any reader may desire to try this method and the descriptions and diagrams are not sufficiently clear, I will gladly furnish models showing unmistakably all the details of the various steps. In the military service one is frequently handicapped by being stationed where ophthalmic work is scarce, which is my situation at present. Suitable cases are rare among soldiers, as it is only in exceptional instances that cases of strabismus are enlisted. Therefore it will take me a long time to get a sufficiently large series of cases to prove the value of the methods.

My one case, however, proves the technic to be not only practicable, but very easy. Consequently the method is announced thus early in the hope that some of those who have a large amount of such work may be persuaded to "try it out."

A FINGER-GUARD

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This protective device I have found very practical and useful in all cases of contusions received at the ends of fingers and toes, as well as after amputations of these members. Particularly will the guard be indicated at these points named where cicatricial tissue has been deposited or is being deposited during the healing process. The guard will be found useful in this class of injuries received by mechanics and workingmen who are obliged to continue at their work for economic reasons while the fingers are still "very tender." All blows or contacts to the injured member, it will be noticed, are received on the metallic breastwork or conical point, and the force of any jar and impact is thus carried down and received on the body of the finger or the healthy, normal tissue, and the shock to the affected part is, consequently, greatly lessened and better distributed than if received directly on the primary injury.

Finger-Guard.

At tinsmiths may be secured strips of tin or zinc, about 1/16 or 1/8 inch wide and approximately 4 inches in length (strips of cardboard so cut will answer nicely if the former material is not at hand). Two of these pieces or strips should be bent to fit over the end of the finger in loop or horseshoe form, each loop being placed at right angles or crossing the other, flat side down, so that there is an anterior and a posterior, as well as two lateral bars (four in all), extending downward nearly to the second phalangeal joint, or lower, if this point is involved in the injury. A strip of adhesive plaster about ½ inch wide is now bound firmly around (it may be split between the bars if member tends to swell much without impairment of anchorage) the finger covering the distal ends of bars to the same depth, or it may lap over the distal ends on the tissue of the finger; the cage or guard will then be securely held in a firm position.

A turn or two of gauze, to be first applied when strips are bent, will protect skin of finger from edges or ends of tin and prevent laceration, or the edges may be bound or rolled in adhesive plaster for the same purpose. A space of from ⅛ to ¼ inch may be left between the end of the finger and the inside of the guard through which the wound may be dressed from time to time.

The whole contrivance may then be closed with turns of a bandage or may be left, if desired, with strips of metal exposed

ACETONURIA AND THE RELATION OF ACETONE TO "ACID INTOXICATION"*

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The purpose of this paper is to report progress on some investigations regarding the nature of acetone and of its relative importance in the symptom-complex known as "acid intoxication." The present conception of this condition is that the toxemia is due to the acid qualities of the acetone bodies, and that the acids, namely, diacetic and beta-oxybutyric acids, although not in themselves toxic, produce a condition of toxemia by uniting with the fixed alkalies of the blood. The blood no longer being able to extract the poisonous carbon dioxid, the subject succumbs to "internal suffocation" from its accumulation in the tissues, the acids being excreted as ammonia compounds, resulting in a larger excretion of ammonia and a consequent diminution of urea.

Ewing[1] reports a study of acid poisoning by injecting intravenously eighth-normal to fourth-normal hydrochloric acid into rabbits. He found that they could stand large quantities of acids slowly administered (one receiving 1,485 gm. in eleven days), drowsiness being the chief symptom, with no dyspnea and no fatty degenerations of the liver or kidneys. He gives the following objections against the purely acid nature of diabetic coma: Munser and Strasser reported cases with acetone and diacetic acid but no oxybutyric acid; coma may improve while the urine is still acid; alkalies may not reduce the urinary ammonia; miliary tuberculosis and erysipelas have been found to reduce the carbon dioxid of the blood. Ewing concludes that some process is responsible for both coma and acids. He is of the opinion that none of the principles of the theory of acid intoxication have been proved, namely, carbon-dioxid asphyxiation, degenerations of vital organs by withdrawal of alkalies and reduced alkalinity. He concludes that more fundamental knowledge of the source, occurrence, chemistry and physiology of the acetone bodies is needed before correct interpretation can be obtained. The appearance of these bodies in such a variety of toxic and debilitating conditions demonstrates that they must play an important part in the pathology of metabolism. An attempt, therefore, to know more of their nature and to become more familiar with their properties is at least worth while.

From the experiments of Knoop and others it seems to be definitely settled that the acetone bodies are derived principally by faulty oxidation of fat and fatty acids, although they can be formed to some extent from proteids. This abnormal splitting of fats can take place during abnormal catabolism or during faulty digestive processes in the intestine. As proof of the latter contention can be offered the following data: Geelmuyden noticed acetonuria after adding olive oil and butter to a normal diet. Neuberg and Blumenthal found that butyric acid by mouth increased acetone output, while subcutaneous injection did not, ascribing this to activity of intestinal bacteria. Beer and Blun fed organic acids to diabetics and found an acetone output in each instance. Schwartz found that fatty diet increased acetone output in diabetes but not in health. Geelmuyden

* Read before the Fort Wayne Medical Society, Oct. 31, 1911.
1. Ewing: Arch. Int. Med 1908, II, 330 and 448.

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found acetonuria after ingestion of sodium salts of diacetic acid in health. In cyclic vomiting acetone is found in the stools and vomitus. Acetone formed in the intestines reaches the liver by direct route in its most concentrated form and its destructive action, if any, would be exerted on the liver. Acetone is excreted by the lungs and kidneys, where again it would be concentrated and exert its deleterious action if any. In accord with this idea are the experiments of Embden, Minkowski, von Schroeder and others, which showed the liver to be the principal seat of acetone, that the synthetic processes that change ammonia into urea, etc., take place in the liver and that the appearance of large quantities of ammonia in the urine is due to disturbed liver function.

Acetone is a thin colorless fluid with a peculiar fruit-like odor and belongs to a class of compounds produced by incomplete oxidation of secondary alcohols. It will dissolve fat, resins and dehydrate tissues, having such powerful dehydrating properties that in using the acetone method for paraffin sections, the water from fresh tissue can be entirely extracted within twenty minutes, thus allowing direct transfer to paraffin. Acetone and its associates, diacetic and oxybutyric acids, are possibly being constantly formed in minute quantities in normal metabolism, although, unfortunately, it is impossible to determine this accurately. In certain diseases some of the intermediate products of catabolism (faulty?) appear in the urine, especially in such acute conditions as acute yellow atrophy, phosphorus poisoning and acute toxemias, in all of which there is rapid destruction of body tissues with selective action on the liver and kidneys. They constantly appear in lesions of the pancreas, which fact is another point in accord with the intestinal origin of some cases of acid intoxication, since disturbance of pancreatic function would reduce digestive activity in the duodenum with resulting faulty cleavage of fats.

It is a well-known fact that, under conditions of lowered body resistance, substances which ordinarily are inert may have considerable toxic power; for instance, Howland and Richards have shown that while in health as high as 18 gm. of indol was innocuous, yet under lowered resistance 0.25 to 0.5 gm. was extremely toxic and produced vomiting, hematemesis, blindness, convulsions and death in animals. As regards the toxicity of the acetone bodies it can be said that diacetic and oxybutyric acids have been found to possess absolutely no direct toxic power. Acetone has been found to possess, when taken by mouth, an intoxicating power similar to that of alcohol. Dreschfeld took 20 gm. without symptoms, but by injecting it subcutaneously in rabbits, after five or six injections, produced coma, slow breathing, convulsions and albuminuria. Kussmaul tested its toxicity on dogs and rabbits and concluded that it was less toxic than chloroform and slightly more so than alcohol which it resembled in action.

It is said that oxybutyric acid is the precursor of diacetic acid and acetone the final product of the series; yet there is no good reason for doing so except the order of their appearance in the urine, the similarity of their chemical formulas and the fact that diacetic acid when heated changes to acetone. Against this view is the fact that acetone can be readily formed by a number of other substances.

Naunyn believes that both acetone and diacetic acid are direct derivatives of oxybutyric acid and declares that he has always found it present in the urine when either of the others was present. In the natural course of synthetic chemistry acids are formed from alcohols instead of vice versa. Dakin and Wakeman have shown that the administration of sodium aceto-acetate is followed by the urinary elimination of beta-oxybutyric acid and that minced liver-tissue from dogs will convert aceto-acetic acid into hydroxybutyric acid, the rate of reduction being quite rapid at the beginning of the action in the incubator. This is just the reverse to the common understanding of their order of formation.

The acetone bodies appear in the urine in diabetes, sometimes in cancer of the stomach, sometimes after anesthesias, in starvation, psychoses, in certain diseases of children, acute fevers, sometimes in pregnancy, in certain poisonings, after extirpation of the pancreas, in cholera, pneumonia, Vincent's angina, and as an independent disease, i. e., cyclic vomiting and, as described by Anders, where there are fatty acids in the stomach and intestines (so-called enterogenous and alimentary acetonuria). The manifestations of toxemia from the acetone bodies vary with the individual, and consist of circulatory and cerebral phenomena, nausea, vomiting, tachycardia, pruritis, vertigo, coma and convulsions. The vomiting center is usually first involved; this is followed by coma and other toxic symptoms. The liver and kidneys undergo more or less rapid degeneration, which may be in the form of hemorrhagic infiltration and central necrosis, but usually is in the form of fatty degeneration, resembling acute yellow atrophy. Bacterial resistance is lowered, resulting in the entrance of infection, and pyelonephritis develops.

Toxemia from the acetone bodies is then a complex condition causing essential changes in the blood-vessels, excretory organs and brain, ending in acute degeneration of the liver, the fulminating cases having symptoms identical with acute yellow atrophy. As a clinical index of this form of toxemia (in pregnancy) urea estimations were found to be without value. Ewing then proposed estimating the ammonia nitrogen, which was also found to be unreliable. Attention has also been given to the condition of the kidneys as evidenced by the appearance of albumin, pus and casts in the urine, but we now know that the kidney lesions are secondary phases of the toxemic condition, lowered bacterial resistance and the excretion of the irritating acetone bodies being responsible for them.

In order to have a clear understanding of the import of acetonuria in pregnancy, I have so far tabulated ninety urinary examinations in different pregnant stages. According to the clinical findings they are divided into four groups: normal pregnancy, nephritic cases, neurotic cases and toxemias. From these data, the following points have been gathered: In normal pregnancy, there were no pathologic urinary findings except occasionally in the last two months a trace of sugar. In the nephritic cases with headache, occasional nausea, vomiting and edema, the urine showed large albumin percentages, casts, usually some pus and occasionally indican. In the neurotic cases, the urinary findings were negative. The toxemia cases may show nausea, vomiting, usually pernicious in character, severe headache, intestinal infection, dizziness and eclampsia. The urine showed acetone in every case and diacetic acid in 20 per cent. of the cases. Pus cells were always present and during the late stages of toxemia traces of albumin and casts appeared. From these data, it is my opinion that the principal reliance should be placed on the appearance in number and

quantity of the acetone bodies in the urine as danger signals of toxemia. From the foregoing statements it may be gathered that acetone is apparently the most toxic of the acetone bodies.

The experiments on animals by injection of acetone caused death, which however, was attributed to other causes, because the symptoms did not conform with dyspneic coma in that rapid breathing did not occur. To test the toxic power of acetone, I made the following comparative tests by injection of guinea-pigs with various combinations of pure and impure acetone. Realizing that it would be impossible to reproduce the state of "insidious and continuous saturation of the blood," as is found in man, I selected a dose that would have a slight intoxicating effect. I found that 1.5 c.c. of a 25 per cent. solution of acetone per 100 gm. by weight of pig could be given with slight drowsiness as the only symptom of the initial dose. This dose would be large if applied to man. It must be understood, however, that such a comparison cannot be made, since we do not know to what extent the factor of resistance of species influences the dosage. For instance, I gave 0.75 c.c. of methyl alcohol to a 200 gm. pig daily for a period of twenty-three days, only the first half dozen doses producing intoxication. This proportionate dosage, applied to a man weighing 150 pounds, would mean 8 ounces of methyl alcohol daily for twenty-three days. Considering that 8 ounces is usually a fatal dose of methyl alcohol, it can be readily seen that the resistance of species plays a large part here, since the man would probably not survive even one dose.

REPORT OF EXPERIMENTS

Experiment 1.—Guinea-pig weighing 300 gm. given five doses of a 25 per cent. solution acetone in water in a period of twenty-four days; the first two doses were 10 drops, the remainder 5 c.c. The first dose caused some itching of the skin, the second, slight drowsiness and a few spasmodic twitchings of facial muscles. The third dose was followed by deep stupor lasting seven hours with respirations of 40 per minute. The fourth dose was followed by coma, cyanosis and rapid breathing, 86 per minute, also clonic alternating spasms involving individual sets of muscles in neck, face and extremities. Coma lasted two hours, followed by stupor. The pig was stupid and thirsty next morning. The fifth dose caused only irritability followed by drowsiness. The sixth was followed in about twenty seconds by deep coma, cyanosis and rapid respiration, 98 per minute. Some type of convulsive spasms as in the fourth injection except stronger and occasionally rigidity and opisthotonos. The animal revived in about an hour with respirations of 70 per minute, drowsy, thirsty. Strong odor of acetone in room. Drowsiness continued for nine hours accompanied by weakness in legs. The animal then relapsed into deep coma, occasionally waking up slightly and was dead next morning. Post-mortem showed hemorrhagic extravasations at sites of injections with mummification. No pathologic changes were found in the liver. Bladder urine showed trace of acetone.

Experiment 2.—Deep coma was produced in a 200 gm. guinea-pig by 3 c.c. 25 per cent. acetone, and then 3 c.c. saturated solution of sodium bicarbonate were injected without apparent effect on coma.

Experiment 3.—A pig having received three injections of 5 c.c. 25 per cent. acetone solution in water on successive days, each injection causing coma, was on the following day given 5 c.c. of a 25 per cent. acetone solution in 0.25 per cent. hydrochloric acid solution (representing gastric juice acidity). This was followed by some uneasiness, itching of skin and slight drowsiness lasting about thirty minutes. On the next day an injection of 5 c.c. acetone solution in water again produced deep coma.

Experiment 4.—A 200 gm. pig was injected with 3 c.c. 25 per cent. acetone in 0.25 per cent. hydrochloric acid daily for thirteen days without apparent effect except slight drowsiness during last six days and some emaciation.

Experiment 5.—A 200 gm. pig was injected with daily doses of 3 c.c. 25 per cent. solution methyl alcohol during a period of twenty-three days, the first nine injections producing coma lasting about an hour with slow gasping respiration and with ears, face and extremities bright red, followed by several hours' drowsiness and unsteady gait. The pig was not emaciated and not much damaged. The last ten injections caused only slight intoxication, the pig apparently becoming accustomed to it.

Experiment 6.—Five c.c. saturated solution of sodium bicarbonate was injected into a pig without effect, except at site of injection.

Experiment 7.—A 200 gm. pig was injected with 3 c.c. 25 per cent. acetone solution in saturated solution sodium bicarbonate. The first dose caused only drowsiness, the second dose stupor, the third dose was followed in two minutes by stupor, hiccough and tremors of extremities. In ten minutes the animal began to have clonic spasms of face and neck muscles. Respirations could not be counted owing to continuous tremors of body; continued in deep coma and died in about ten hours. Strong odor of exhaled acetone in the room. Bladder urine showed trace of acetone. Post-mortem showed lungs bright red and right heart filled with blood. Lower lobe of liver showed a yellow area about the size of a grain of corn. Microscopic examination of liver and kidneys showed quite marked cloudy swelling and fatty degeneration of both. The yellow area in the liver showed complete fatty degeneration.

Experiment 8.—A 300 gm. pig was injected daily with 1 c.c. of 25 per cent. solution of acetone for thirty-two days. At first the injection was followed by a period of quiet, but after several days the injections were followed by periods of excitement, jumping and whirling rapidly and with itching of skin. After about ten injections some unsteadiness of gait developed and the animal seemed delirious after the injections. After the last three or four injections of the series, the animal apparently developed mania and had to be segregated on account of biting other pigs. Both hind legs became partially paralyzed. Later the excitement after injections was replaced by stupor, dulness and somnolency all the time, causing death from starvation.

Experiment 9.—A 400 gm. pig was injected daily for twelve days with 5 c.c. 25 per cent. acetone solution. The first injection was followed by slight drowsiness; the second caused unsteady gait; the third, fourth and fifth caused stupor in from one to two and one-half hours. The sixth injection was followed in ten minutes by severe intermittent rapid clonic convulsions, alternating in individual sets of muscles lasting about one-half hour. The animal was then somnolent for an hour when the convulsions reappeared lasting four minutes; but it recovered in five hours and was very thirsty. The twelfth injection was followed by sudden death in one minute. Post-mortem showed cyanosis; both auricles were filled with blood. The mediastinum was filled with blood. The liver was quite large, hard and brittle; the stomach and bowels were filled with food, no emaciation. Hemorrhagic infiltrations at site of injections and muscles beneath were dry and tore easily. There was an odor of acetone in internal organs. Microscopic examination of liver showed beginning fatty changes throughout the liver. The protoplasm in most of the liver-cells was breaking down, leaving vacuolated cells containing fat and contracted nuclei. The blood-vessels were engorged and there was hemorrhagic infiltration into all of the intercellular spaces. Microscopic examination of one of the hardened hemorrhagic areas of injection showed a sterile mummification of the subcutaneous and muscular tissue. The blood-vessels were hardened and in numerous places broken up like a clay pipe-stem with hemorrhage into the tissue spaces.

Experiment 10.—A 200 gm. pig was injected with 8 c.c. 25 per cent. acetone solution; result, coma with respiration of 92 and death in a few hours.

Experiment 11.—Another set of experiments similar to the foregoing was made with a different sample of acetone. The

toxicity of this sample was found to be insignificant. On testing it, the sample of acetone was found to be impure and containing a large amount of oxidizable substance.

CONCLUSIONS

1. Subcutaneously injected, acetone has a slow cumulative toxic power which may, during periods of individual susceptibility, effect serious or even fatal damage.

2. Subcutaneously injected, the toxic power of acetone is much greater than methyl alcohol.

3. Guinea-pigs not only have an individual susceptibility, but have daily variations of their individual susceptibility.

4. Acetone dehydrates and hardens tissue, is a local irritant and causes hemorrhagic extravasations.

5. If acetone is formed in the intestine or liver it must be in a pure strong state at the site of formation and would there exert its destructive action on the neighboring cells.

6. As shown by the above typical examples of experiments repeated several times, following a toxic dose of pure acetone, guinea-pigs develop coma, rapid respirations and nervous phenomena, including itching, dizziness, muscular twitching, temporary mental disturbance, and may develop convulsions in the form of rapid clonic spasms. The acetone is excreted almost entirely by the lungs.

7. Post-mortems on guinea-pigs killed by acetone poisoning show fatty degeneration of the liver and kidney, with hardened and ruptured blood-vessels and hemorrhagic extravasations.

8. Acetone is to be considered a far more important diagnostic sign of toxemia in pregnancy than urea or albumin and should always be looked for as a premonitory danger signal of toxemia.

CASE REPORTS

The following cases serve to illustrate some of the conditions in which acetone is found, and some of them, in my opinion, point entirely to an intoxication due to acetone:

CASE 1.—*Fatal Acetone Intoxication.*—A girl, aged 6, taken sick suddenly, with negative previous history, with fever and rapid pulse, became drowsy and sank into coma with temperature 103 F. and pulse 140. There were no other symptoms. Urinary examination was negative, except that a large amount of acetone was found but no diacetic acid. The patient died on the fourth day of illness. Post-mortem examination revealed no macroscopic lesions.

CASE 2.—*Acidosis after Operation.*—Mr. J., aged 48, had had attacks of summer diarrhea since childhood. In winter he usually had attacks of constipation, passing bloody mucus with stools; stomach and bowels quite irritable, accompanied by heavy indicanuria. Examination of stools show dark scybala, very offensive, containing much undigested vegetable material, muscle-fiber and some fat crystals, pointing to pancreatic indigestion. The patient was operated on for hemorrhoids and was given an opiate to lock the bowels. On the third day he became violently delirious, requiring three men to hold him. At times he was apparently rational but had very marked delusions. During these intervals he would take food. Urine contained an excessive amount of acetone and indican. This condition lasted for a period of eleven days and gradually subsided under eliminative treatment with thorough cleansing of the bowels. On two of the days when this attack was at its height, diacetic acid appeared in the urine. The acetone gradually disappeared with the symptoms.

CASE 3.—*Fatal Acid Intoxication.*—Miss P., aged about 25, fell sick, with a temperature of 100.2 F., pulse 62. The patient vomited twice during the next day and had severe continuous headache. On the third day temperature was 102 F., there was headache, extreme nervousness, and constipation. The patient gradually grew weaker with prostration, complaining of pain in the abdomen; the breath was very offensive. Temperature fluctuated from 100 to 103, the patient was very nervous and vomited occasionally. She gradually went into stupor and coma; passed urine involuntarily; was delirious at times. Pulse gradually rose from 70 to 150 on the thirteenth day, at which time she died. Blood examination showed 12,600 leukocytes and polynuclear cells 82.6 per cent. Widal negative. Two ounces of urine obtained by catheterization for examination on the twelfth day showed specific gravity 1034, acidity 100 degrees tenth-normal sodium hydroxid, 4 per cent. albumin by volume, faint diazo reaction, acetone reaction was very heavy, diacetic acid very heavy, 0.8 per cent. of sugar and few pus cells (no sugar in urine at beginning of illness). Post-mortem showed a mass of calcified tuberculous glands retroperitoneally, and some congestion of the kidneys and pancreas. The tuberculous glands showed no evidence of activity. The colon was full of dark foul-smelling semisolid feces. Microscopic examination showed congestion of the kidney; pancreas was congested with slight interstitial hyperplasia. The liver was not sectioned.

CASE 4.—*Light Typhoid with Severe Acetone Toxemia.*—Miss M., aged 22, had slight headache and malaise for a week, with constipation and chilly sensations. July 19 temperature in the afternoon was 102, pulse 85. July 22 blood-examination showed 70 per cent. hemoglobin, 10,000 leukocytes, Widal negative, polynuclear cells 60 per cent., large lymphocytes 23.3 per cent., small lymphocytes 13.3 per cent., transitional cells 3.4 per cent., no eosinophils. Urine showed specific gravity 1024, acidity 75 degrees tenth-normal sodium hydroxid, 0.03 per cent. indican, strong diazo reaction, strong acetone reaction and faint diacetic acid. July 23 the patient was removed to hospital, a rise of temperature to 102 followed, after which it fluctuated from 100 to 102.5. There was great prostration and excessive perspiration; tenderness in bowels. Patient was restless and sleepless and complained of pain in the right arm. July 24 small hemorrhagic spots appeared on both arms, which became very painful to touch. She could not move arms without considerable pain and it was necessary to swathe them in bandages, on account of pain caused by contact with bed-covering. Patient was constipated throughout sickness; pulse rose steadily from day to day and on July 25 stood at 145. Blood-examination, July 25, showed 17,900 leukocytes, 72.4 per cent. polynuclear, large lymphocytes 17.6 per cent., small lymphocytes 8.8 per cent., transitional cells 0.6 per cent., no eosinophils, mast cells 0.6 per cent., Widal incomplete reaction. July 26, pulse 150, patient was quite weak; there was considerable prostration with some cyanosis and tendency to light delirium. July 27 the muscular pains had extended through limbs and back; perspiration was quite heavy. July 28, pulse at noon was 156; at 6 p. m., pulse 168, temperature 102. Urinalysis on July 28 showed specific gravity 1028, acidity 60 degrees, trace of albumin, trace of sugar, a large amount of acetone, no diacetic acid, a few hyaline and granular casts, trace of blood-cells, some pus and many kidney cells. July 29, at 10 a. m., pulse stood at 172 and was very weak. Patient was *in extremis*. At 1 p. m. there was a slight hemorrhage from the bowels. Diagnosis: light attack of typhoid with severe acetone toxemia. Treatment was instituted in the morning for extreme toxemia, dram doses of bicarbonate of soda every three hours and digitalis, both tincture and infusion. Under this treatment the pulse dropped at 2 p. m. to 156; at 3:30 pulse was 130; at 6 p. m., 120; temperature, 101. July 30, pulse rose again to 175 at 4 a. m.; patient complained of extreme weakness; was so weak that she could scarcely talk or raise the head. Prognosis was made that the patient would live only a few hours; under digitalis, strychnin and bicarbonate of soda in large and frequently repeated doses, however, the pulse dropped to 120. Next day patient showed marked improvement; cyanosis was gone, mind clear, and patient felt a great deal stronger; at 3 p. m., pulse 125. July 31, temperature dropped to 98.6, pulse 120. Acetone test showed a faint trace. August 1, acetone test was negative. From this time on patient stead-

ily improved and was discharged from hospital August 19; temperature normal, pulse 80.

CASE 5.—*Pernicious Nausea in Typhoid.*—Mrs. R., admitted to hospital July 28, with temperature of 103.2, pulse 100, respiration 32, severe headache, constipation, slight nausea, continued in about this condition until August 14, with temperature 101.4, pulse 88, respiration 30; vomiting became pernicious, occurring after each meal, accompanied with severe headache and severe nausea. Temperature during illness fluctuated from normal to 102. August 22, she complained of pain in lower part of abdomen, intermittent in character. August 24, there was hemorrhage from bowels, large clots. Blood examination, August 24, showed 11,000 white cells; Widal, faint positive reaction; polynuclear cells 78 per cent. Urinary examination specific gravity 1026, acidity 60 degrees, trace of albumin, no sugar; indican 0.04 per cent., diazo reaction present, trace of diacetic acid and large amount of acetone, hyaline, granular and epithelial casts, trace of pus-cells and many kidney-cells. Lower part of abdomen was tender on palpation; temperature 100.4, pulse 108. September 2, temperature was 99, pulse 86, but patient vomited several times a day. Urine showed specific gravity 1010, trace of albumin, heavy acetone and strong diacetic acid reaction, few hyaline casts and 0.75 per cent. pus (by volume). Dram doses of bicarbonate of soda were now administered three times a day, under which vomiting occurred four more times and then stopped entirely, after having continued for five weeks. September 6, urine showed no acetone, but trace of albumin and 0.33 per cent. of pus. September 14, the patient was removed to her home, with still some pain in lower part of her abdomen. One month later she was again taken to the hospital and a small abscess was opened in a scar of the abdominal wall, which accounted for the abdominal pain and increase of polynuclear leukocytes.

CASE 6.—Miss S., aged 21, single, domestic, constipated, with a temperature of 102.2, pulse 120, complained of frequent urination, spasmodic pain in right lower abdomen, nausea, vomiting and extreme nervousness. She had had previous attacks of this nature; no other illness. Physical examination showed well-defined mass in right inguinal region most marked when pain was present. Blood showed polynuclears 85 per cent. Urine on the day she entered the hospital showed 3 per cent. albumin, a few waxy and hyaline casts, and 0.5 per cent. by volume of pus. Strong acetone reaction, no diacetic acid. On the third day acetone disappeared coincident with marked improvement under treatment of sodium bicarbonate, 60 grains three times a day, hexamethylenamin (urotropin) 8½ grains three times a day, and autogenous colon vaccine 250 million. Improvement was shown on the third day and she left the hospital in one week.

CASE 7.—Woman, four months pregnant, suddenly fell over in coma and died in twelve hours. Pulse was 130 to 150; temperature normal and respiration 40 to 50. Frothy mucus ran from mouth and diagnosis of pulmonary edema was made. Bladder urine catheterized just before death showed specific gravity 1035, acidity 130 degrees, no albumin or sugar, no pus, heavy acetone reaction and faint trace of diacetic acid.

CASE 8.—W. C., aged 26, following ingestion of lobster salad had attack of vomiting and diarrhea lasting two days, followed by slight jaundice, fever and pernicious nausea. Urine examination showed specific gravity 1032, acidity 125 degrees, albumin 3.5 per cent. by volume, strong bile and acetone reactions, no diacetic acid. Sediment showed trace of hyaline casts. Blood showed 21,000 leukocytes, differential count normal, Widal negative. Stupor gradually developed and granular casts appeared in the urine. Examination of vomitus showed a sediment amounting to one-third the total bulk and consisting of changed blood-cells, no hydrochloric acid, but organic acids amounting to 105 degrees tenth-normal sodium hydroxid present. Lactic and butyric acids negative, acetone reaction strong. Diagnosis by consulting physicians: "Toxemia resembling acute yellow atrophy of liver." Patient died on the sixth day of illness. Post-mortem was not obtained.

902 Calhoun Street.

THE VACUUM-BOTTLE AS AN INCUBATOR

HENRY S. SATTERLEE, M.D., NEW YORK

Recently J. H. Schrup[1] of Dubuque, Ia., described the use of the vacuum-bottle as a means of incubating bacterial cultures. As I have had some experience with the method I think that it may not be amiss, while interest in the subject is still fresh, to communicate a brief summary of the observations which I have made.

The vacuum-bottle occurred to me as a convenient expedient in a case of some urgency seen last June in the country where no laboratory method of incubation was available. I had never heard of a vacuum-bottle being used for this purpose before, and, after several satisfactory trials, it seemed so valuable a resource that I undertook some experiments to test its reliability under varying conditions. One series of experiments was made in June, 1911, during very hot weather, and I had intended, for comparison, to make a second series of tests during this winter.

In a preliminary series of tests with five vacuum-bottles, comprising three pints and one quart with cork stoppers, and one quart carafe with ground-glass stopper, there was an average drop of 4 C. in twelve hours and 5.5 C. in eighteen hours, which corresponds very closely with Schrup's observation.

I also found that plain water retained its heat better than any other liquid medium which I employed, and that the introduction of from one to three tubes in a single bottle made no appreciable difference in loss of heat, provided the precaution was taken of warming the tubes just before introduction.

From 40 to 41 C. (from 104 to 106 F.) seemed to be the best starting point to give an optimum growth from throat cultures in the minimum time.

For practical tests I made triplicate streak-cultures from the throats of diphtheria patients in the Willard Parker Hospital, using the regular slant tubes of Loeffler's blood-serum furnished by the New York Health Department, and placed one of each set in a quart vacuum-bottle, another in a pint bottle and the third, as control, in a laboratory incubator in the Research Laboratory of the New York Health Department. Each set of tubes was placed to incubate at the same time, and always within a half hour after the time of taking the cultures from the throat. The culture tubes were removed from the bottles at varying periods of time (from eleven to eighteen hours), and with their controls examined as to macroscopic and microscopic appearance of the growth.

In each experiment the following points were noted: (1) site and character of the exudate; (2) time of taking the culture; (3) time of beginning incubation period; (4) temperature of water in the bottles and of the incubator at the start and finish of incubation; (5) time of ending the incubation period; (6) temperature of outside air at beginning and end of the incubation period; (7) macroscopic appearance of the growth; and (8) microscopic appearance of the stained specimen.

The results of these experiments were very nearly uniform. The growth in the vacuum-bottle tubes was, in general, more abundant macroscopically and showed greater moisture; and in some of the positive cultures it was noted on microscopic examination that the Klebs-Loeffler bacilli appeared larger and slightly more numerous than in the control.

These differences were explained by the facts that the control tubes were at a constant temperature in the laboratory incubator at about 34.5 C., while the mean temperature of the bottle tubes was about 37 C., and that the bottle tubes were tightly capped with rubber, whereas the controls had, in most cases, paraffined cotton stoppers but no rubber caps.

For examining cultures and making notes on the findings, I am indebted to Miss H. L. Wilcox, of the research laboratory, without whose valuable aid I could not have made these experiments with the necessary precision.

780 Madison Avenue.

1. Schrup, J. H.: THE JOURNAL A. M. A., Jan. 27, 1912, p. 273.

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RELATION OF ALBUMINURIA TO INDICANURIA

ISRAEL BRAM, M.D., PHILADELPHIA

From the records of 500 specimens of urine examined in the clinical laboratories of the Medico-Chirurgical and Jewish Hospitals, during 1909 and 1910, including specimens from my own practice examined in my office, I find an apparent definite relationship existing between the occurrence of albumin and indican. I could find no previous record of such relationship in the standard works on clinical uranalysis. The following tabulation will illustrate the matter clearly:

	No. of Specimens
Albumin reaction, but no indican	187
Indican reaction, but no albumin	210
Albumin reaction with questionable trace of indican	4
Indican reaction with questionable trace of albumin	2
Neither albumin nor indican reaction	97
Total examined	500

This illustrates that it is not common to find albumin and indican present in the same specimen of urine, and when present, either one or the other will usually exist in so minute a quantity as to give a questionable reaction with the usual tests.

The tests used for the detection of albumin were those usually employed in the above-mentioned laboratories, namely, (a) the nitric acid contact test; (b) the heat test, and (c) contact test with Roberts' solution.

The test employed for the detection of indican was the procedure described by Daland, i. e., to 10 c.c. of filtered urine add 1 drop of a 1 per cent. solution of potassium chlorate, then 5 c.c. of chloroform, and lastly 10 c.c. of chemically pure hydrochloric acid, to be mixed thoroughly by pouring repeatedly from one test-tube to another. Within two or three minutes the indican, if present, is reduced to indigo, which dissolves in the chloroform and imparts a blue color to it. In about ten minutes the maximum coloration is reached.

The apparent relationship between albuminuria and indicanuria is a question to be solved.

717 North Eighth Street.

TWO CASES FROM CESAREA

A. R. HOOVER, M.D., TALAS, CESAREA, TURKEY

REPEATED REFORMATION OF STONE IN BLADDER

Patient.—A Greek, aged 76, in good general condition, presented himself at our clinic, complaining of painful micturition, strangury and often blood-tinged urine. Examination showed suprapubic scar and perineal scars; examination of bladder showed presence of stone.

History.—In August, 1905, patient was first operated on for stone in the bladder, through the perineal incision. The operation was performed at Talas American Hospital by Dr. Post of Beirut; and, according to patient's account, a very large, hard, nodular, irregular-shaped stone was extracted. The second operation for stone in the bladder was performed January, 1906, when a small bird's-egg-sized stone was extracted. The patient says that both perineal and suprapubic incisions were made. The third operation was one year later; through perineal incision, and a stone the size of an olive was extracted.

Operation.—The fourth operation was performed after an interval of four years, on Nov. 23, 1911, at the Talas Hospital, by the perineal route. A bird's-egg-sized stone was extracted and the patient made an uninterrupted recovery.

ACCIDENTAL COMPLETE INVERSION OF UTERUS

The status of midwifery practice in Turkey is well illustrated by the following case:

Patient.—A young American woman from the city of Cesarea came to us complaining of an almost continual hemorrhage since the birth of her child four months previously. Examination showed a well-formed woman, aged 20, extremely anemic; mucous membranes and conjunctivæ showing pale and bloodless. Local examination revealed a completely inverted uterus, contracted to normal size, firm in consistence, lying entirely within the vaginal cavity; the slightest manipulation caused blood to ooze from the exposed mucous membrane of the uterus.

History.—On being questioned the patient told the following story: "I had been well throughout this pregnancy, and, not anticipating any trouble, did not consult any physician but when labor pains came on I called a midwife to assist me. She made the usual examination and assured me that all was right and told me to have no fear. I brought forth my child with considerable difficulty, after which the midwife made another examination, and to my consternation said that there was a second child. She then tried to force the child out by pressing forcibly on my abdomen, but when that failed she began pulling at something from below. She pulled and pulled until she found it impossible to accomplish anything, when, on more careful examination, she found that what she was pulling at was no child at all, at which she became frightened, and, saying she could do no more, she left me to my fate. I did not realize what had happened but knew that something was wrong and I almost died from the effect of the ordeal through which I passed. Finally, after some weeks, I recovered somewhat but found that the hemorrhage continued and I decided to come and consult you."

Operation.—Median abdominal incision was made in the hope of being able to dilate the cervix forcibly and replace the uterus, although after a lapse of four months it was considered very doubtful. The cervix was found rigid and unyielding and after a few minutes' effort the replacement of the uterus was abandoned. The tubes and round ligaments were disposed of through the abdominal incision, after which the hysterectomy was completed *per vaginam*. The patient made an uneventful recovery, leaving the hospital in eighteen days.

The midwives of this country are for the most part untrained women who know little of the principles of asepsis, and in practice disregard them entirely. As a consequence puerperal fevers and pelvic trouble of all kinds are very common.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. ITS ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

ATOPHAN.—Phenyl-quinolin-carboxylic-acid.—Atophan is 2-phenyl-quinolin-4-carboxylic acid, $C_6H_5.C_9H_5N.COOH.2:4 = C_{16}H_{11}O_2N$.

2-phenyl-quinolin-4-carboxylic acid was described by Doebner and Giesecke in 1887 (*Annalen der Chemie-Liebig*, Vol. 242, p. 291), who prepared it by warming together pyroracemic acid, benzaldehyde and aniline in alcoholic solution. Its therapeutic action was described by Nicolaier and Dohrn in 1908 (*Deutsches Archiv für Klinische Medizin*, Vol. 93, p. 331).

Atophan crystallizes in small colorless needles, melting at 208°-209° C. It is insoluble in water but readily soluble in alkalies, hot alcohol and boiling glacial acetic acid. It has a slightly bitter taste.

Actions and Uses.—Atophan in doses of 0.25 to 0.5 Gm. (4 to 8 grains) increases uric acid excretion, within one hour. In doses of 2 to 3 Gm. (30 to 45 grains) the normal average uric acid excretion is doubled and sometimes even trebled in twenty-four hours. This action of atophan is said to occur both under purin-containing and purin-free diet. Its influence on uric acid excretion is stronger and more prompt than that

of sodium salicylate. It does not increase the number of leukocytes, or affect the quantity of urine, or the amount of total nitrogen or of the purin bases or the phosphoric acid.

It is said to be useful in gout, particularly in the acute attacks, acting more promptly than colchicum and without undesirable by-effects. In non-uratic joint affections, particularly in acute articular rheumatism, the results reported are also said to be favorable, while the chronic forms seem to yield to atophan only in isolated cases.

Dosage.—In gout the dose is from 0.5 Gm. (7½ grains) four times a day to 1 Gm. (15 grains) three times a day suspended in large quantities of water. In order to prevent the precipitaton of free uric acid from the urine with possibly resulting renal colic, Weintraud considers it necessary to administer simultaneously 15 Gm. (225 grains) of sodium bicarbonate in the course of the first day and 5 to 10 Gm. (75 to 150 grains) on the following days. In articular rheumatism Heller prescribes daily doses of 3 to 5 Gm. (45 to 75 grains).

Manufactured by the Chemische Fabrik auf Actien, vormals E. Schering, Berlin, Germany (Schering & Glatz, New York). No U. S. patent. U. S. trademark No. 84,596.

Atophan Tablets.—Each tablet contains atophan 0.5 Gm. (7½ grains) and a small amount of cacao.

Therapeutics

THE PUERPERIUM

After the completion of the third stage of labor the physician should remain by his patient for at least one hour and should carefully watch the condition of the uterus, occasionally placing his hand on the abdomen over it so as to be sure that the organ shows a proper degree of contraction.

Shortly after the labor has been completed, many patients suffer a chill. While the active pains of labor are still coming and going, the patient usually feels abnormally warm, perspires abundantly, and eagerly desires to throw off the bed-clothing which has been placed over her. After the completion of labor the body is more or less covered with perspiration, and the blood and other discharges from the uterus, which vary largely in quantity, increase the moisture on the surface of the body. These two conditions coupled with the small amount of clothing tend to produce a sensation of chilliness indicated by shivering. Care should be taken as far as possible to prevent this by removing the wet cloths, pads and clothing from under her, and by covering the patient more warmly as soon as labor is completed. If the chilliness is severe and continued, one or two teaspoonfuls of whisky in some warm water may be given.

At the end of an hour, if the uterus is well contracted, if there is not a more copious discharge of blood than is usual, and if there are no untoward symptoms manifest, the physician may leave the patient. Before doing so, he should instruct the nurse to put the baby to the breast after from four to six hours, and also to have the patient urinate at the same time. The length of time before these duties should be attended to varies somewhat according to the time of day and the condition of the patient. If the patient is sleeping, and especially if it is in the late hours of the night and the baby and mother are both quiet, it is well to postpone them until the mother awakes in the morning.

The physician should see the patient again within twelve hours. The number of subsequent visits is determined by the progress or condition of the patient.

At his first visit the physician should inquire whether the patient has urinated, whether there has been an unusually copious flow, and whether the baby has nursed. He should feel the patient's pulse, and learn her temperature and respiration. He should also feel of the uterus through the abdominal wall in order to learn if it is still satisfactorily contracted.

If the patient is unable to pass urine, after she has been encouraged by delay until the bladder has become completely filled, she may be allowed to get up to do so. In some instances it may be necessary to pass a catheter. This should not be delayed until the bladder has become overdistended, on account of the danger of producing a temporary paralysis of that viscus. The catheter should be passed with strict antiseptic technic. The instrument, which is preferably of glass, should be boiled; the physician should sterilize his hands; the parts surrounding the opening of the urethra should be bathed in an antiseptic solution, and the catheter should be passed with the aid of the sense of sight so as not to introduce any vaginal discharge containing bacteria into the interior of the bladder. The passage of the catheter should be repeated at least twice a day, if the patient is unable to urinate voluntarily.

After-pains often cause great discomfort to women, and especially to multiparas. It appears probable that sometimes the severity of after-pains is diminished by securing thorough contraction of the uterus with expulsion of any clots which may be present after the completion of labor. Some believe that the administration of small doses of fluidextract of ergot, as for instance, 1 c.c. (15 minims) every four hours, will secure regular contraction of the uterus and the emptying of clots from its interior, with a diminution of after-pains. If one is sure that the pains are not kept up by the presence of clots within the uterus, codein may be given, in doses of ¼ grain, repeated every two hours until the pains cease. Quinin has often been found valuable in causing sufficient uterine contraction to prevent these after-pains.

The nurse should take the temperature, pulse and respiration of the patient three times a day, preferably at 8 in the morning, 2 in the afternoon, and 8 in the evening, and should record them for the information of the physician.

It was formerly common practice to have the nurse administer a vaginal antiseptic douche twice a day during the first week after labor. This custom has now been generally abandoned, and no vaginal douche is given unless there is some special indication for it; but the vulva should be bathed two or three times a day with sterilized water which, if there has been much laceration, may contain some antiseptic, such as phenol, or the bichlorid of mercury. The pads placed to receive the flow should be changed with sufficient frequency so that the patient may always be comfortable.

Until the secretion of milk appears in the breasts, the baby should be put to the breast at intervals of three or four hours. After the secretion of milk becomes well established, it will be necessary for the mother to nurse the baby at intervals of from two to three hours.

When the breasts become congested the weight causes discomfort and it is necessary to support them by a well-applied bandage which does not compress the breasts but simply holds them up on the chest-wall. If this congestion causes considerable discomfort it may be relieved by the application of ice-bags. Sometimes massage will give relief, but massage for this purpose must be applied properly and must not cause pain. The object of the massage is to empty the distended lymph-vessels and veins. Consequently, it should be directed from the circumference of the breasts toward the axillæ.

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If the milk is scanty or is secured by the infant with much difficulty, the nipples are apt to be injured by the nursing; also when the nipples are deformed with a tendency to fissures they are more easily injured and erosions appear, and sometimes blood-serum forms little scabs on the nipples. Such nipples are very easily infected and the infection is apt to extend down into the breasts and cause abscess. The infecting germs may be on the skin of the breasts or may be brought there by the hands and fingers of the mother or nurse, or they may come from the skin of the child. Possible infection from any of these sources should be avoided. The breasts, and especially the areolar regions, should be thoroughly washed with soap and hot water before the first nursing and at least once a day during lactation. The nipples should be bathed after each nursing by some harmless antiseptic, like boric acid or a solution of alcohol. In the intervals of nursing the nipples should be covered with aseptic gauze. Infection may be avoided by forbidding the mother or nurse to take hold of the nipples with the fingers, and also by avoiding with greatest care contamination with pus from the child. This is apt to occur if there is a purulent discharge from the infant's eyes, or if there are pimples or pustules on the face of the child, a not uncommon condition. If abrasions or fissures occur, a glass nipple-shield should be used during the nursing.

The question of diet is one which at the present time is somewhat unsettled. Some advise limiting the patient for two or three days to milk, ordering a cupful to be taken every two hours. In addition the patient may be allowed water if she is thirsty. But recently so much has been said and written about the inadequacy of milk as a food for healthy adults, that there is a strong tendency to add other food to the milk, even during the early days of the puerperium, and, barring complications, many physicians early place their patients on a general diet, moderate in amount.

It is usually better not to order alcoholic stimulants for puerperal women, unless there is some particular indication for them.

If the patient has been accustomed to drink tea or coffee, she may be allowed to take either in moderate amount, if it does not cause wakefulness.

A movement of the bowels should be secured after forty-eight hours. It is usually necessary to give a laxative in order to insure this. Perhaps the most useful is half an ounce of castor-oil. If the patient is unwilling to take this, she may be given effervescing citrate of magnesia solution. If there is difficulty in having the bowels move, an enema may be given to soften the fecal matter in the rectum. A movement of the bowels should be maintained every day, and usually this may be effected most satisfactorily by giving an enema of warm soap-suds.

As the period of inactivity of the patient in bed is of considerable length, all hygienic conditions should be observed to promote the health and comfort of the patient.

The room should be well ventilated, and certain forms of "bed exercises" with the windows open are sometimes recommended. The patient may be instructed in deep breathing, with or without slightly resisted movements of the arms, and similar resisted movements of the legs may be employed. Otherwise the patient should be surrounded by conditions conducive to rest, with freedom from care and from responsibility on account of household management or otherwise.

There is considerable difference of opinion as to the length of time the patient should be kept in bed after labor. There is, at the present time, some tendency with certain practitioners to allow their patients to get out of bed after three or four days; but it is safer to keep most women in bed for ten days, allowing them after that, if they have no untoward symptoms, to sit up half an hour on the first day, on the next day an hour in the morning and an hour in the afternoon, on the next day two hours in the morning and two hours in the afternoon, and so increasing the period an hour each day, but not allowing them to sit up all day at any time during the first month without requiring them to lie down for two hours, or for one hour twice, each day until the baby is a month old.

It is usually the rule that the patient should not be allowed to go out of doors until the baby is four weeks old, but in hot climates, or in summer, when the temperature is high, she may be allowed to go out of doors at the end of two or three weeks.

The question of the abdominal binder is another one on which there have been varying opinions. Probably its importance has been overestimated by some and underestimated by others. Most women prefer to have an abdominal binder adjusted, although unquestionably some do perfectly well without it. It is advisable, however, in the absence of some good reason for not doing so, to apply the bandage after parturition. It should be applied snugly, and should come down over the hips so far that it will not slip up and become loose, when of course it is of no value.

When the woman commences to walk about and go out of doors, the question of a corset naturally arises. When one is worn it should be of such a character as to support the lower abdominal walls and the viscera in the lower part of the abdomen and not to press tightly around the waist and so displace the abdominal and pelvic organs downward and allow the downward displacement of the abdominal wall.

It may be suggested on behalf of the physician that when, after examination, he finds the patient is progressing favorably and his services seem to be no longer needed, he should definitely terminate his contract by informing the family that he will make no further visits unless called on, but that the patient should call at his office in a month for an examination. This relieves him from censure or liability on account of after-arising complications in case he is not promptly called.

Stream Pollution.—Modern populations must have modern sewage systems, for they will be poisoned by their own excreta by the old ways. Indeed it is known, remarks *American Medicine*, that certain districts have almost reached the limit of their population by old ways of passing on the wastes to become a nuisance elsewhere. Then again, the dense populations need more water than is available except by depopulating a distant highland and piping the water down, the cost of which may soon be prohibitive and not produce enough water even if it was within our means. The minds of engineers are therefore turning to nearby streams, which must be kept clean enough to use without expensive filtration. Indeed, we may have to use such water for street cleaning and fire purposes even before it is cleaned sufficiently to drink. Some of such supplies may receive unavoidable filth and never be fit for household use, for no system of filtration is perfect, and it is a cardinal principle that drinking-water should be so pure and so guarded that filtration or sterilization will never be necessary. This is then the trend of municipal sanitation and we might as well adjust ourselves to it.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, MARCH 2, 1912

THE AMMONIA EXCRETION IN THE URINE

It is well known that a small fraction — about one-twentieth as a rule — of the nitrogen eliminated through the kidneys appears in the urine in the form of ammonium compounds, and is usually referred to analytically as ammonia-nitrogen. This fraction, along with the other nitrogenous companions of urea, such as creatinin, uric acid, etc., has been the subject of special interest and study for some time; and it has long been hoped that a better appreciation of the metabolic history and significance of all the regularly appearing excretory products would lead to useful applications in the field of clinical diagnosis. Lately the meaning of large variations in the ammonia-nitrogen of the urine has particularly been discussed in relation to certain pathologic states, notably the pernicious vomiting of pregnancy and the disturbances of nutrition incident to complete or partial starvation.[1]

Obviously the import of the "normal" excretion of ammonium compounds needs to be understood before it is possible to theorize very extensively regarding variations therefrom. We do not refer, of course, to so-called ammoniacal urines whose reaction is distinctly alkaline from ammonia liberated by bacterial decomposition of urea either within the bladder or on standing after its excretion. For the real metabolic processes this ammonia has no meaning; and it might seem superfluous to refer to it, were there not such a wide-spread lack of appreciation among physicians of the necessity of preserving carefully and with antiseptic precautions specimens of urine which are to be subjected to the more refined methods of chemical analysis. Persons who would never think of submitting a sample of soured milk for examination find no incongruity in expecting intelligent investigation of urine which has been kept for hours without any pretense of preservation. The innocent indifference in such matters is little short of appalling.

The ammonia of a "normal" urine is recognized to represent in some measure the effort of the organism to neutralize acids introduced into the body or formed in metabolism and not further altered. When indestructible acids are ingested they are eliminated combined with bases as salts. When there is an excess of acids over bases calling for elimination, ammonia becomes available to adjust the neutralization. Does the ammonia ordinarily found represent such a function alone? Or may it have additional significance? It was at one time seriously debated whether, inasmuch as ammonia is undoubtedly the immediate precursor of urea, some of the urinary ammonia does not represent a failure of complete urea synthesis. Since the latter is associated with the liver, the finding of high ammonia outputs in hepatic disease was at once associated with a failure of the urea-forming mechanism. We know now, however, that organic acids are formed in abundance in such conditions and thus account for the associated increased output of ammonia from the acidosis standpoint. Furthermore, the feeding of ammonium salts in such conditions fails to furnish any evidence, except in extreme cases, of an insufficiency in urea production therefrom.

A further suggestion offers itself, namely, that ammonia may represent in some measure a reversible reaction by which it is formed from urea itself. It has frequently been observed that the administration of alkalies in the form of sodium bicarbonate, for example, will greatly depress the output of ammonia in the urine. This is conspicuous in the management of diabetes, in which the acids formed in intermediary metabolism draw heavily on the store of alkalies and call for the metabolic ammonia unless added alkali is furnished. As a rule, however, an inevitable rest of ammonia remains even when 15 or 20 gm. of bicarbonate have been administered. In Müller's clinic at Munich, Dr. Janney[2] of Philadelphia has attempted, at Neubauer's suggestion, to decide whether this ammonia rest actually represents something more than an acid-neutralizing function. He administered large doses of sodium bicarbonate (or citrate, which burns to carbonate in the organism and is better tolerated) to individuals free from nutritive disorders as well as to patients with liver diseases, and observed the effect on the acidity and ammonia content of the urine. Urea was also administered as such to some of the subjects, with the object of eliciting a "reversible" ammonia formation, if this ever occurs. The latter could not be demonstrated. More suggestive, however, was the observation that with a sufficient supply of the alkali it is possible to make the ammonium derivatives practically disappear from human urine. For this purpose about 8.6 gm. of sodium bicarbonate for each gram of nitrogen output are necessary. On an average diet 15 gm. of bicarbonate suffice to reduce the acidity to zero, the ammonia output to one-third.

These investigations, together with numerous earlier ones, lend emphasis to the conclusion that the ammonia

1. Underhill: A Consideration of Some Chemical Transformations of Proteins and Their Possible Bearing on Problems in Pathology, Arch. Int. Med., 1911, viii, 356.

2. Janney: Die Ammoniakausscheidung im menschlichen Harne bei Zufuhr von Harnstoff und Natron, Ztschr. f. physiol. Chem., 1912, lxxvi, 99.

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found combined in human urine has the sole function of neutralizing acid products, i. e., of correcting one feature of acidosis. A realization of its true significance cannot fail to favor the true interpretation of urinary analyses in which ammonia is correctly determined. Simple analytic methods for this purpose are now easily available.

SEWAGE DISPOSAL AND BAD ODORS

While there is no reason to suppose that bad smells are in themselves injurious to health, the prevention of offensive putrefactive processes must always remain one of the chief aims of sewage disposal systems. Often, indeed, the only problem sewage disposal presents to a municipality is the avoidance of a nuisance. It is well known that the non-living organic matter in sewage may either be broken down by oxidizing processes, in which case no objectionable odors are produced, or be split up by reducing agencies in the absence of oxygen, in which case malodorous by-products are generated. From this standpoint, then, the prevention of a nuisance consists simply in providing for oxidation of the organic matter in the sewage. Under certain conditions this end may be accomplished by diluting the sewage with a sufficiently large volume of oxygen-containing water. The discharge of sewage into the water of a large lake or river is hence often sufficient to prevent a nuisance; on the other hand, such a practice may be fraught with great danger to the public health if a public water-supply is derived from the lake or river in the neighborhood of the point of sewage discharge.

During the past few years many special processes for the direct or indirect oxidation of sewage impurities have been experimented with and have been used under practical conditions. Intermittent sand-filters, contact beds, sprinkling-filters and numerous other devices have each been thought to possess special advantages and to lead to avoidance or at least to minimization of a nuisance. Looking at the results so far obtained it cannot be said that actual certainty in this field of experimentation has yet been reached. At the same time it may reasonably be asserted that it is possible to-day to treat large volumes of sewage much more expeditiously and with much less offense than it was a few years ago.

Intermittent sand-filters, in localities where the winter climate is not too severe, will yield an effluent of relatively high purity which may be discharged without further treatment into neighboring water-courses. This method is adapted for small plants only, since about an acre of surface is required for treating the sewage of 600 people.

Contact filters, made of stone, slag or other coarse material, will give a non-putrescible effluent of fairly good appearance when operated at a rate about five times as high as intermittent sand-filters, but the degree of oxidation reached is not so great. Filter-beds of the contact-filter type on the surface of which fresh sewage is sprayed by a variety of ingenious devices are known as sprinkling-filters and have won much favor in the experiments of the last decade. When properly constructed and operated an acre of sprinkling-filters will ordinarily dispose satisfactorily of the sewage of 20,000 to 25,000 people.

Whatever method of filtration be used, it is desirable first to free the sewage from as much suspended matter as possible before applying it to the filter. This may be brought about by simple sedimentation basins where, however, the disposal of the sediment or sludge gives rise to much difficulty. The most recent development along this line is the introduction of the two-story settling tank (Imhoff or Emscher tank), in which sedimentation takes place in the upper chamber and digestion of the sludge in the lower chamber. The essential feature distinguishing the Imhoff tank from the so-called septic tank is that none of the contents of the digestion chamber are allowed to mingle with the effluent of the settling chamber above. The sewage that reaches the filter beds is therefore not "septic sewage," but is substantially as fresh as the unsettled sewage and can hence be much more effectively oxidized than the sewage from a septic tank.

It is evident that several methods are now available by which sewage can be disposed of on a large or small scale without the production of objectionable odors, and also that the choice of method must be determined by a study of local conditions. It is not possible to settle a sewage disposal problem offhand with any universally applicable formula. Each case should be studied by an expert or body of experts with regard to local conditions and local requirements. Only in this way can mortifying and costly mistakes be avoided.

UNAPPRECIATED FACTORS IN DIET

The statement of the fact that there are in various dietaries specific properties of which the physiologic value is not measured by the actual nutrients that the foods may contain, is by no means new in these columns. Indeed, we have repeatedly tried to bring home the truth that numerous and presumably mostly unknown constituents of the food intake of man serve uses in the body in ways that are as yet both mysterious and inscrutable. These components of the diet are of importance to our nutritive welfare for reasons quite aside from any energy-yielding functions possessed by them; for they usually represent minute traces of substances which serve to initiate special responses in the organism or direct its activities into appropriate channels. One recalls the interesting studies of Reid Hunt on the variations in the resistance or susceptibility of animals to poisons in relation to the character of the diet on which they have been maintained. According to these investigations certain foods, notably dextrose, oatmeal, liver and kidney, greatly increase the resistance of white mice to

the poison acetonitrile, whereas others, notably eggs, milk, cheese and various fats, greatly lower it.[1] Such phenomena are not readily detectable or measurable by the ordinary methods of metabolism study.

The earlier nutrition studies concerned themselves largely with the quantitative aspects of the dietary. It was necessary to ascertain the amount and kinds of the foodstuffs which are required to maintain nutritive equilibrium. Short periods of observation often sufficed to bring out the essential facts. Whenever some new and unexpected feature or claim was advanced the cry often went forth that the experiments were of too short duration to permit a final word. The fact that man can live comfortably on comparatively small intakes of protein, provided that abundance of energy is supplied in other forms, was long appreciated; but the objection was raised that observations covering a few days or even weeks are inadequate to settle the problem of the protein minimum. When Chittenden successfully completed his familiar low protein experiments covering many months of observation the critics in turn asked what the outcome of such living would be in the long run, i. e., in the course of a generation, rather than weeks or years.

No better illustration of the value of observation over long periods of time can be afforded than the recent admirable investigation of Hart, McCollum, Steenbock and Humphrey at the University of Wisconsin,[2] involving the physiologic value of rations for domestic animals. By "long duration" is meant such periods of time as will cover the growth of the animal to maturity and reproduction. The added feature of exceptional interest in this research is that the sources of nutrients for each of a series of groups of cattle were limited to a single plant. Furthermore, it was arranged to satisfy the standards for what the writers on animal production are accustomed to call a properly balanced ration in which the gross quantity and proportions of protein, fat, carbohydrate and roughage were approximately alike. One lot of cattle was thus nourished on products derived entirely from corn; another on wheat products; a third from oats; while a fourth lot received a ration made up of exactly one-third of each of the three other rations.

The outcome of this elaborate research deserves careful study and affords most interesting reading. Its bearing on the problems of human nutrition cannot be overlooked, especially since it is practically impossible to conduct comparable experiments on the human family. We cannot reproduce even a small portion of the wealth of surprising details here. A few conclusions from the four years' study may be recited, however.

"There is evidence from the data that there is a distinct and important physiologic value to a ration not measurable by present chemical methods or dependent on mere supply of available energy. While the latter are important and give valuable data for a starting point, they are nevertheless inadequate as final criteria of the nutritive value of a feed.

"Animals fed rations from different plant sources and comparably balanced in regard to the supply of digestible organic nutrients and production therms were not alike in respect to general vigor, size and strength of offspring and capacity for milk secretion.

"Animals receiving their nutrients from the wheat plant were unable to perform normally and with vigor all the above physiologic processes.

"Those receiving their nutrients from the corn-plant were strong and vigorous, in splendid condition all the time, and reproduced young of great weight and vigor.

"Animals receiving their nutrients from the oat-plant were able to perform all the physiologic processes of growth reproduction and milk secretion with a certain degree of vigor, but not in the same degree as manifested by the corn-fed animals.

"Where a mixture of all the above plant materials was used, the animals responded to the ration with less vigor than to the corn or oat rations alone, but with more vigor than to the wheat ration.

"These are the records from the continued use of rations for three years. Monotony of diet was not a troublesome factor and is not of such importance in nutrition problems as usually supposed. . . . The influence of a normal ration, depressing or stimulating, may be felt in a single gestation period. Wheat-fed animals were changed to the corn ration with marked improvement within the year in the size of offspring and in milk secretion. The converse was true when corn animals were taken to the wheat ration."

Here is a story of combinations of food materials which, in the long run, may make for vigor, resistance, and splendid physique, or for debility and decline. It teaches us how little, after all, dietetics has emerged from the purely empirical stage, and how much needs to be solved before it can be put on a sound theoretic basis.

1. Hunt, Reid: Bull. 69, U. S. Public Health and Marine-Hospital Service, Washington, 1910.
2. Physiological Effect on Growth and Reproduction of Rations Balanced from Restricted Sources, Univ. Wis. Agric. Expt. Sta., Research Bull. No. 17, June, 1911.

THE PHYSIOLOGY OF LACTATION

For many years physiologists have been familiar with evidence indicating that the secretion of milk is largely or entirely independent of nervous control. There are cases of spinal cord lesions in women with normal lactation, and experimental destruction of the cord in animals has not interfered with this function. Transplanted mammary glands develop during pregnancy, and secrete milk after parturition, although all their connections with the nervous system have been divided. Furthermore, drugs, such as pilocarpin, which stimulate secretion in other glands, are without effect on the secretion of milk. It is only recently that we have been able to supplement this negative evidence by positive information on the mechanism by which the body controls lactation; and, as was to be expected, this control is found to depend on internal secretions which take the place of

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nervous stimuli. First in order came the discovery of Miss Lane-Claypon and Professor Starling that the growth of the mammary gland during pregnancy is influenced by a specific hormone which is developed in the fetal tissues. This observation, which has been repeatedly confirmed in experimental animals, received support from the interesting case of the pygopagous Blazek twins; one of the pair became pregnant, and the mammary glands developed in both and secreted milk after the child was born.

The first demonstration of a hormone which stimulates the secretion of milk was made by Ott and Scott of Philadelphia,[1] who reported that an extract of the posterior lobe of the hypophysis (infundibulin) has a very powerful galactagogue effect on the secreting mammary gland, and that corpus luteum, pineal gland and thymus extracts have a similar but less marked effect. Since that time they have extended their work considerably, and recently it has received corroboration from the laboratory of Professor Schäfer at Edinburgh.

The latest paper from this source, by Mackenzie,[2] reports that of a great number of tissues examined only the posterior lobe of the pituitary, corpus luteum, pineal body, lactating mammary gland and involuting uterus give active extracts, and with the two last named the results are inconstant. The pituitary extract is much the most active, and it is active whether from lactating or non-lactating animals, whether from the same or different species, and even when the hypophysis is from birds in which, of course, no galactagogue effect can be a natural function of the gland.

Whatever the active principle may be, it is very stable, not being injured by boiling, drying, or treatment with alcohol, in which it is insoluble. That the pineal gland furnishes an active substance is of particular interest because hitherto no effect has ever been demonstrated with preparations of this organ, and also because the only thing known about the pineal gland suggesting that it has a function is the fact that there are recorded a few cases of pineal tumor associated with exaggerated or premature sexual development and function. Corpus luteum, on the other hand, might be expected to have this effect, for it is known that these bodies persist during lactation. Extracts of both placenta and fetus were found to inhibit the galactagogue effect of the active extracts, which may account for the normal suppression of lactation until after the discharge of the products of conception.

All these results are of great interest, advancing immensely at one step our knowledge of a subject of much practical importance. Therapeutic possibilities at once present themselves, and we shall hope for favorable reports on this side of the work. The practicability of treating dairy herds with infundibulin concerns us less.

1. Ott, Isaac, and Scott, John C.: Proc. Soc. Exp. Biol. and Med., 1910, viii, 48.
2. Mackenzie, Kenneth: An Experimental Investigation of the Mechanism of Milk Secretion, with Special Reference to the Action of Animal Extracts, Quart. Jour. Physiol., 1911, iv, 305.

A TRIUMPH OF SANITATION

Too much of what appears in print on public health subjects bears internal evidence of having been written by those without first-hand knowledge of the subjects discussed. The result is a vast accumulation of platitudinous and often inaccurate advice, not only as to personal hygiene, but as to the solution of nation-wide health problems. On the other hand the real sanitarians, those who actually go into the field and accomplish something, too frequently content themselves with brief and technical accounts of their work. The consequence is that much of the enthusiasm of the public is misdirected and the limited funds usually available for health work are expended on matters of comparatively minor importance.

These remarks do not apply to the campaign against typhoid conducted last summer in Yakima County, Washington, or to the manner in which the results are recorded in a recent Bulletin[1] of the United States Public Health Service. In this bulletin Dr. L. L. Lumsden gives a clear and succinct discussion of the causation and prevention of typhoid and illustrates each point by reference to conditions observed in the State of Washington.

Space prevents our doing more than mentioning the salient features of the Yakima campaign. The conditions were as follows: A densely populated semi-rural community, provided only in small part with public water-supplies and sewerage systems; a very large number of insanitary privies, frequently in close proximity to shallow wells; a number of stables and manure-piles, breeding innumerable flies; an extensive system of irrigation ditches, accelerating the prompt and wide distribution of pollution; typhoid prevailing throughout the year, but with a marked increase each summer, the annual typhoid death-rate being about 150 per hundred thousand. The methods employed were the creation of a popular sentiment for improved sanitation by means of public addresses; an exhibit at the health department, etc.; the enforcement, in a practical and common-sense way, of ordinances requiring the connecting of houses with the sewerage system and, when this was impracticable, the construction of cheap but efficient sanitary privies; the protecting of the water- and milk-supplies; the proper disinfection of human excreta; the destruction of the breeding-places of flies, etc. Those directing the work did not stop with sententiously advising the citizens to expend immediately large sums of money in filtration and sewage purification plants and, in the meanwhile, to "boil the water" and leave the rest to Providence; simple, practical measures were at once employed.

The result was, as already indicated, a practical elimination of the disease. This signal triumph of sanitation

1. Lumsden, L. L.: The Causation and Prevention of Typhoid Fever, with Special Reference to Conditions in Yakima County, Washington. Government Printing Office, Washington, D. C. Copies of this bulletin may be obtained by applying to the Surgeon-General, U. S. Public Health Service, Washington, D. C., or to a Congressman.

is worthy of more than passing attention by other communities, for like conditions may be found, with variations, throughout the United States. The campaign conducted in Yakima Valley clearly and indubitably lowered the annual typhoid rate there by about 90 per cent. Were similarly successful campaigns carried out throughout the country, the number of cases of typhoid in the United States would soon be reduced by 400,000, and the deaths by over 30,000 per year. Such a statement seems incredible, but any one carefully studying the conditions at Yakima will be convinced that they were not in any respect more favorable for the suppression of the disease than those existing elsewhere; in fact, conditions are more favorable in most localities.

Current Comment

"U. S. P. AND N. F. PROPAGANDA"

To further the intelligent and rational use of medicines, THE JOURNAL, with the assistance of the Council on Pharmacy and Chemistry and of the Chemical Laboratory, has exposed the false claims made in regard to the composition and the action of many proprietary medicines. This "propaganda for reform in proprietary medicines" has been supplemented by the efforts of pharmacists to promote the use of certain pharmacopeial and National Formulary preparations whose composition is similar to that claimed for some of the proprietaries which have been exposed. This "U. S. P. and N. F. propaganda" of the pharmacists falls short of our ideal in that it merely aims to substitute a ready-made, usually complex and unscientific mixture of known composition, for a ready-made, equally complex and unscientific mixture of unknown composition. But in so far as it promotes the use of preparations of known composition in place of those of unknown, uncertain or fraudulent character, the medical profession is indebted to pharmacy for the aid which has been given. The medical profession cannot, with good grace, criticize pharmacy for having chosen the path of least resistance when it attempted to wean physicians away from proprietary nostrums by encouraging the use of similar official preparations. There is danger, however, that the pharmacists' propaganda may mean only that the physician who previously used certain proprietaries uncritically will be led to use just as uncritically the official preparation from which the proprietary was derived. For instance, the physician who used Glycothymoline and expected the wonderful results claimed by the manufacturer, may use the alkaline antiseptic solution of the National Formulary with equally absurd expectations. Or the physician who gave his patient Churchill's or Fellows' Syrup of Hypophosphites will prescribe the Compound Syrup of Hypophosphites, U. S. P., in the same haphazard and unscientific way. Let us hope therefore that those physicians who substitute official preparations for proprietary nostrums will do so with a full realization that they are still in their professional swaddling-clothes and that they should make a serious effort toward individual, rational prescription-writing.

A RATIONAL CALENDAR

The calendar and the hours of the day seem to most of us almost like part of the natural and immutable order of things, and however much trouble the present indefensible system has caused, men have felt that it was rash—almost impious—to suggest a change in it. "Give us back our eleven days!" cried the mob when the Gregorian calendar was introduced into Great Britain. From the days of Julius Cæsar to our own, he has been a bold reformer indeed who would suggest changes in the disorderly procession of the months. Now enters Moses B. Cotsworth of Victoria, B. C., with a proposal for a rational calendar. He would divide the year into thirteen months, each of twenty-eight days, which would leave one extra day in the year, and this he beautifully plans as a free day for every one — free from interest charges on money, the necessity to work, the wage scale, etc. Then each month would commence on Sunday and the first, eighth, fifteenth and twenty-second days of each month would be Sundays. President Hadley of Yale is quoted as saying that the month of four weeks "will come as a commercial necessity." The adjustment to the change would be very small compared to that necessitated when standard time was introduced on transcontinental railways. Mr. Cotsworth has literature to distribute, poking fun at the present system. If he wins, school children need no longer learn: "Thirty days hath September."

A RATIONAL HOLIDAY SCHEDULE

A writer[1] in that eminently practical paper, the *Survey*, attacks a problem related to the one discussed above. He observes that the irregular distribution of the holidays throughout the year and their changing coincidence with the days of the week often entail hardship. "For instance, where a holiday falls on Tuesday or Friday, many business concerns seize the opportunity in dull time to cut their pay-roll by closing down on the Monday preceding or Saturday following, thus enforcing a two-day holiday with corresponding loss to the employee; then again, when such holidays fall in midweek, the holiday spirit on the days preceding and following seriously interferes with the efficiency of the worker and thus involves a hardship on the employer." The remedy proposed is the transposition of most holidays to Mondays and their more even distribution throughout the year; thus Washington Day would be observed on the Monday following February 22, Lincoln Day on the first Monday in April, and so on. "This order would secure for our industrial army a two and one-half days' respite from toil, with loss of only one day's pay, and would insure for the employer a better week's product from five consecutive days' labor after two and one-half days' rest." The reformer excepts Christmas and New Year's Day from the working of this rule, but he certainly ought to make the reformation complete and include them — and, while the operating instruments are sterilized and ready, free Easter from its adhesions to the vernal equinox by giving it a definite date.

1. Wevill, R. H.: The Holiday Calendar; Can We Improve It? Survey, Feb. 17, 1912, p. 1756.

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FAITHFUL WORK

When the meningitis epidemic broke out in Texas, it was necessary that the serum to combat the disease be administered by one familiar with its use, as is explained in a letter in our Correspondence Department. When Dr. Sophian — the physician chosen — was sent to the field, he may not have realized the hard work that lay before him, but we find no record of his flinching from his task. At any rate, a few days later he was in the midst of the epidemic, working twenty or more hours a day, bending all his energies to the humanitarian work he was sent to perform. When medical men work like this and fall a prey to disease, exposure or strain, we honor them as martyrs. It is not unfitting that we occasionally chronicle a fine piece of self-sacrificing devotion to duty, even though the recipient of the praise has returned to his routine work and will doubtless deplore the publicity we thrust on him.

ANNUAL CONFERENCE ON MEDICAL EDUCATION, MEDICAL LEGISLATION AND PUBLIC HEALTH

Each year since it was created in 1904, the Council on Medical Education of the American Medical Association has held a conference on medical education, and the eighth of these conferences was held this week. They have constituted an open forum where the problems confronting medical education have been brought up and given thorough discussion. It has been largely on these discussions that the Council has based its efforts which have effected so many improvements in medical colleges and in educational standards. These conferences are having a wider influence than was ever hoped for. For the third year the Council on Health and Public Instruction has held its conferences conjointly with those on medical education. For two years past the Association of American Medical Colleges and the two confederations of state licensing boards arranged their meetings in Chicago during the same week. Hence there has developed a series of conferences on medical education, medical legislation, medical licensure and public health. This has enabled members of state boards, medical educators and others to attend all these meetings at a smaller expenditure of energy, time and money and, on the other hand, all the organizations have secured a larger attendance than would have been possible otherwise. Of more importance, however, is the fact that there is a closer cooperation between the organizations, with programs so coordinated as to prevent needless duplication of discussions, and more unanimity of effort, which is bound to bring greater results. This is apparently the most satisfactory meeting yet held. The first instalment of the reports of the session begins on page 652.

The Physician as a Citizen.—A medical man should be first of all a desirable citizen. By virtue of his calling his responsibilities as a citizen are greatly increased. He cannot afford, and has not the inclination or the time, to be a politician, who is too often more of an echo of a class than a molder of public opinion; but he should be capable not only of analyzing the principal public questions of the day, but also of recognizing his duty in the preservation of the health of the State. —J. D. Gatewood in *United States Naval Med. Bull.*

Medical News

ALABAMA

New Officers.—Lee County Medical Society: president, Dr. George H. Cooper; secretary, Dr. Homer S. Bruce, both of Opelika.——Dale County Medical Association: president, Dr. William D. Mixon; secretary-treasurer, Dr. Malcolm O. Grace, both of Ozark.——Hale County Medical Society: president, Dr. Edgar P. McCollum; secretary-treasurer, Dr. Charles A. Poellnitz, both of Greensboro.——Barbour County Medical Society: president, Dr. John S. Tillman, Clio.

Personal.—Dr. Francis Marion Inge, Mobile, has succeeded Dr. Harry T. Inge as division surgeon of the Louisville and Nashville system.——Dr. Harry T. Inge has accepted the position of chief surgeon of the Mobile and Ohio Railroad.——Dr. Barney B. Rogan, Selma, fell down a flight of steps in a theater in Selma, January 24, injuring his left patella.——Dr. Walter H. Bell, editor of the *Alabama Medical Journal*, who was recently operated on for appendicitis at the South Highlands Infirmary, Birmingham, is reported to be convalescent.

ARKANSAS

Medical Department to be Reorganized.—An order has been issued by the adjutant-general abolishing the medical department of the Arkansas National Guard and providing a new medical corps, consisting of three majors, two staff captains, six line captains and three lieutenants. Col. James C. Minor, Hot Springs, will continue in charge of the department.

Personal.—Dr. James M. Keller is reported to be seriously ill at his home in Hot Springs, Ark., as the result of injuries received in a fall.——Dr. Russell G. Floyd, Eureka Springs, who has been taking a trip eastward around the world, has reached San Francisco on the return trip.——Dr. Merrieman L. Norwood, Lockesburg, was operated on recently for appendicitis at the University Hospital, Little Rock.——Dr. Homer A. Stroud, Jonesboro, was painfully injured in a runaway accident, February 1.——Dr. John W. Ringold, Ashedown, while hunting recently, received an accidental gunshot wound of the right knee.

CALIFORNIA

Yellow Fever on Ship.—The British ship *Akalis* is said to have put into Salina Cruz, asking for medical aid, on account of five cases of yellow fever among its crew.

Personal.—Dr. Albert E. Osborne, Santa Clara, has been elected medical superintendent of the Napa State Hospital for the Insane, vice Dr. Elmer E. Stone, Napa, resigned.——Drs. William J. Jackson and Tilton E. Tillman, assistant surgeons in the Emergency Hospital, San Francisco, have resigned.——Dr. Wilfred H. Kellogg has been appointed director of laboratories, and Dr. Carl L. Powers, assistant sanitary inspector of schools, both of San Francisco.——Drs. Louis Michelson, Berkeley, William H. Harrison and Leo Elsesser, San Francisco, have been appointed Emergency Hospital surgeons.——Dr. Frank K. Ainsworth, San Francisco, has resigned as member of the State Board of Health. Dr. Ainsworth is soon to leave for a stay of a year in Europe.——Dr. August C. Bothe, city chemist, and Dr. Sydney R. Dannebaum, city bacteriologist of San Francisco, lost their positions March 1, on account of the abolition of the department by the mayor.

GEORGIA

Appropriation for Hospital Continued.—The commissioners of Ware County have agreed to continue the annual appropriation of $1,200 for the King's Daughters Hospital, Waycross.

Fire in Sanatorium.—Fire in Dr. Henry D. Allen's Invalid Home for the Insane, Milledgeville, February 8, caused only slight damage. The 100 female patients in the institution were removed without accident.

Personal.—Dr. L. Benjamin Clarke has been elected president; Dr. Cyrus W. Strickler, vice-president, and Dr. Luther P. Stephens, secretary, of the Grady Hospital Medical Board, Atlanta.——Dr. Arthur D. Little has been elected chairman and Dr. Harry B. Ainsworth a member of the health board of Thomasville.

The Book and Journal Club.—The Book and Journal Club of the library committee of the Georgia Medical Society, at its meeting, February 6, reviewed the literature on pellagra and of snake venom; and at its meeting on February 20, the facts and theories about tuberculin were discussed, some recent advances in the pathology of intestinal obstruction were

described and the lesions of pellagra were demonstrated by lantern slides.

Druggists and Doctors Hold Joint Meeting.—On February 13 a joint meeting of the Georgia Medical Society and the Association of Retail Druggists was held in Savannah. An address was made on the co-work of the physician and the pharmacist; proprietary drugs were discussed from the standpoint of the physician and of the pharmacist, and a paper was read on the work of the Council on Pharmacy and Chemistry of the American Medical Association.

ILLINOIS

Personal.—Dr. Virgil D. Crone, Canton, was operated on for cholelithiasis, February 15, in St. Francis Hospital, Peoria.

Epidemic Disease.—Assistant Secretary J. C. Westervelt, of the state board of health, Springfield, has been sent to Wetaug to investigate a reported epidemic of scarlet fever.

Appropriation for Medical Department Held Unconstitutional.—The Illinois Supreme Court handed down an opinion February 23, holding that the appropriation of $60,000 for the medical department of the University of Illinois was unconstitutional on the ground that the bill in its final form was not printed before its passage by the legislature. This decision may also affect the law making an appropriation for the Kankakee State Hospital.

Typhoid in Rockford.—Up to February 21, the epidemic of typhoid in Rockford had affected 158 people and caused six deaths. The investigation of Prof. E. O. Jordan of Chicago University showed that the infection came from Well No. 2 of the city water supply, a well which had not been in constant use. The water from this well showed 400 or 500 times as many germs as the water from the other wells tested, and in his opinion this is the source of the epidemic. The use of the well as a reserve supply will be discontinued.

Chicago

Entertainment for Health.—A lecture on the Garden of Allah was given at Orchestra Hall by Dwight Elmendorf, February 19, for the benefit of the maternity and children's ward of the Post-Graduate Hospital, and about $2,000 was realized for the institution.

Military Evening for Physicians' Club.—The Physicians' Club of Chicago will hold a joint meeting with the Medical Reserve Corps, U. S. Army, and the Medical Corps, Illinois National Guard, March 8, at the Hotel Sherman, at 7 p. m. The general subject for discussion is to be "Medical Service in the Philippines and Cuba."

Street Car Ambulances Urged.—Dr. George C. Hunt, chief of the Ambulance Bureau, has recommended to the local transportation committee that ambulance street cars be provided to run to the Emergency and Cook County hospitals, and further, that an ordinance be passed making any street car an emergency ambulance car in case an ambulance or ambulance car is not at hand.

MARYLAND

Personal.—The governor has appointed the following coroners: Kent County, Dr. Frank W. Smith, Chestertown; Cecil County, Dr. William P. Dean, and Cumberland County, Dr. William H. Shaw.——Dr. Ryon Devereux has been appointed a school commissioner of Montgomery County.

Baltimore

New Dispensary Opened.—The Baltimore General Dispensary opened its new building in Paca and Fayette streets, February 15. The physicians in charge are Drs. Henry M. Baxley, Edward E. Mackenzie and Edmund A. Munoz.

Remsen in New England.—After the founders' day exercises of Johns Hopkins University, February 22, Dr. Ira Remsen, the president, went to Boston where he delivered addresses before the New England Alumni Association and Tufts College.

Personal.—The governor has appointed the following coroners for Baltimore: Drs. Thomas R. Chambers, David I. Macht, J. Frederick Hempel, Elijah J. Russell, Harry C. Hyde, Michael A. Abrams, Harry C. Algire, Robert G. Davis and John G. Jeffers.

MASSACHUSETTS

Medical Ward Dedicated.—The new children's ward of the Boston Dispensary was formally dedicated, February 7. Among the speakers were the president of Harvard University; Dr. Abraham Jacobi, New York City, President-elect of the American Medical Association, and Dr. Malcolm Storer, president of the medical staff. The new ward occupies the third and fourth floors of the dispensary building, and has accommodation for thirty patients, besides a small isolation ward and two balconies for fresh-air treatment.

New Officers.—Eastern Hampden Medical Society, February 1: president, Dr. Raymond A. Kinloch; secretary and treasurer, Dr. Ernest L. Davis, both of Springfield.

Harvard a Medical Center.—Within a radius of half a mile of Harvard Medical School there are already built or under construction sixteen medical institutions, representing in value of buildings and capitalized funds about $20,000,000. The five new hospitals, two of which will move into new quarters, added to the eleven medical institutions already constructed, will make the hospital and clinical facilities of the school extraordinary. The buildings at present under construction are the Harvard Memorial Cancer Hospital, the Thomas Morgan Rotch, Jr., Building, which will house the Infant's Hospital, the Children's Hospital, the Peter Bent Brigham Hospital, the State Psychopathic Hospital, the Robert Brigham Hospital, and in addition a Harvard dormitory and medical union club house, the latter of which is only projected at present.

The Canteen Question.—At the meeting of the council of the Massachusetts Medical Society, February 7, resolutions were adopted unanimously and even with enthusiasm, urging the restoration of the canteen to the Army, under proper regulations, in accordance with the provisions of the Bartholt bill. Statements were made that venereal disease is the most common and most serious disease in the Army, that it disables about 20 per cent. of the force every year; that the abolishment of the canteen from the Army in 1901 seems to have increased the evils it was designed to restrain or remove, and that the surgeon-general and medical officers of the Army, with few exceptions, and the chief of staff, are of the opinion that venereal disease, drunkenness, insubordination and desertions are less prevalent when beer is allowed to be used in the canteen under proper regulations.

Personal.—Dr. George W. Dow has been elected city physician and a member of the board of health of Lawrence.—— Dr. Ernest V. Scribner has been elected superintendent of the State Hospital, Worcester, and Dr. Henry L. Stick superintendent of the State Asylum, Worcester, both appointments to take effect April 1.——Dr. Horace S. Moran, Wakefield, is said to have been declared insane and committed to the Northampton State Hospital.——Dr. Michael H. Chrystal, Leominster, has been elected secretary of the Doctors' Club. ——Dr. Marcus L. Dillon, superintendent of Franklin Square Hospital, is reported still to be seriously ill with septicemia, due to an operation wound.——Drs. Eliza J. Dadmun, Laura A. C. Hughes, Bradford Kent and Roland W. Brayton have been appointed school physicians of Boston.——Dr. Frederick C. Shattuck, Jackson professor of clinical medicine in Harvard University, has resigned to take effect September 1, owing to his having reached the retiring age limit.——The governor has nominated Dr. John G. Blake, Boston, as trustee of the Gardner State Colony.——Dr. Henry I. Klopp, Westboro, has been appointed superintendent of the State Homeopathic Hospital for the Insane, Rittersville.

MICHIGAN

Personal.—Dr. George M. Kline, Ann Arbor, has been elected superintendent of the Danvers (Mass.) State Hospital.—— Dr. Harry A. Sibley has been appointed medical inspector in the public schools of Pontiac.

Health Bulletin.—The first issue of the *Bulletin of the Department of Health of Kalamazoo* appeared February 10. It contained statistics regarding the work of the board of health for January, the contagious disease record, and the scores of the different dairymen of the city under the new merit-score card system.

Appropriation for Sanatorium.—The city council of Lansing on February 19 voted to appropriate $2,000 to be applied to the purchase of a site and the erection of a sanatorium for the care of persons afflicted with tuberculosis, subject to the vote of the people of Ingham County to raise $4,000 by general taxation for the same purpose.

State Health Officers' Meeting.—At the annual Michigan Health Officers' Convention held in Ann Arbor, January 30-31, under the presidency of Dr. Victor C. Vaughan, the chief subjects of discussion were: "The Michigan Method of Water Analysis"; "The Need of a State Hospital for Cases of Advanced Tuberculosis"; "Water Purification"; "Disease Carriers"; "Occupational Diseases"; Hotel Sanitation"; "The Medical Milk Commission"; "Garbage Disposal"; "The Small-Pox Situation," and "Eugenics Work in Michigan." A per-

manent organization was effected with the following officers: president, Dr. Guy L. Kiefer, Detroit; vice-presidents, Drs. Langlois, Wyandotte; Thomas M. Koon, Grand Rapids; Arthur F. Fischer, Hubbell, and Edward Goodwin, Bay City; and secretary, Dr. Robert L. Dixon, Lansing.

MISSOURI

New Officers.—Lewis County Medical Society, January 30: president, Dr. Thomas F. McGlasson, Lewiston; secretary, Dr. Paul F. Cole, Steffenville.

Fire in Hospital.—Fire in the Levering Hospital, Hannibal, February 13, caused damage estimated at $15,000, and necessitated the removal of twenty patients. No casualties occurred.

College Will Issue Monthly.—The University Medical College, Kansas City, announces that a monthly bulletin, to be known as the *College Spirit*, will be issued every month under the auspices of the college, showing the work that is being done by the institution.

Personal.—Dr. Thornton E. Moore, Trenton, suffered amputation of a leg for gangrene in Dr. Wright's Hospital, Trenton, February 9.——Dr. William S. Sanders, Clarence, reports that he has been greatly improved in health by his stay in San Antonio, Texas.

Convalescent Home Founded.—A home for convalescents, established by Trinity Episcopal Church, was opened in Kansas City, February 11, with accommodation for six patients. It is known as Trinity Convalescent Home, and is located in East Missouri Avenue, overlooking the river and close to the Cliff Drive and North Terrace Park.

Hospital Notes.—A five-room house in Galena is to be remodeled and made into an eight-room hospital with two wards, one for men and one for women, each accommodating six patients, and operating room.——Fayette is making an effort to obtain a hospital, which is much needed in that city.——Arrangements have been made by the executive committee of the board of trustees of Springfield Hospital for the construction of the proposed wing to the hospital building.

St. Louis

Fire in Hospital.—A fire in the L. C. McLain Orthopedic Sanitarium, February 4, caused about $900 damage and necessitated the removal of 140 patients from the building.

Makers of Medicine.—Dr. James J. Walsh, dean of the Medical Department of Fordham University, New York, and a member of the consulting editorial staff of the New York *Herald*, delivered an address before the St. Louis Medical History Club, February 5, on "Old-Time Makers of Medicine."

Well-Known Pharmacist Dies.—Enno Sander, a well-known pharmacist of St. Louis, a charter member of the Association of Military Surgeons of the United States, and a pharmaceutical member of the American Medical Association, died in St. Luke's Hospital, St. Louis, February 12, from malignant disease, aged 90.

Warns Against Meningitis.—Dr. Max G. Starkloff, health commissioner of St. Louis, has sent notices to physicians of the city asking them to take every step possible to prevent an epidemic of meningitis in the city, and placing the services of health department physicians at the disposal of any physicians who may apply.

Personal.—Dr. William Porter has purchased a residential property in Ocean Springs, Miss.——Dr. Robert M. Funkhouser, former coroner of St. Louis County, suffered a broken rib, a cut on the forehead and severe contusions in an automobile collision, February 10.——Dr. August H. Vordick sailed for the Mediterranean February 15.——Dr. Richard A. Bolt of Pekin, China, formerly of St. Louis, writes that he organized the Red Cross work in China in the war of revolution.——Dr. Rollin C. Blackmer, St. Louis, has been elected president of the Maplewood Physicians' Club.

Hospital News.—Ground has been secured by the St. Louis Children's Hospital Corporation of Washington University, with a frontage of 150 feet on King's Highway, at a cost of $26,142 for a children's hospital. The building will overlook Forest Park and is expected to be ready to receive patients in July.——Tentative plans for a new hospital for tuberculosis are announced by Dr. Cleveland H. Shutt, hospital commissioner. It is planned to establish the hospital, which is to cost $75,000, near the Robert Koch Hospital, south of Jefferson Barracks, and the institution will accommodate 150 patients.——A new dispensary, in which emergency cases will be treated, was opened February 10 at the City Hospital.

NEW YORK

Small-Pox and Vaccination.—In view of the prevalence of small-pox in this state the Medical Society of the County of Erie adopted resolutions at its last meeting stating that in view of the increase in number of cases of small-pox during the last decade and of the extensive propaganda of the anti-vaccinationists they wished to request those in authority in city, state and nation, to take suitable action to provide that, hereafter, in reporting cases of small-pox, mention and record should be made of the fact, time and efficiency of vaccination and revaccination in every case. The report card for cases of small-pox authorized by the State Department of Health of New York State covers practically all of the points in these resolutions.

Communicable Diseases in December, 1911.—The records of the State Health Department for December show that scarlet fever increased during that month, there being 1,548 cases as compared with 1,260 for November. There were reported 2,441 cases of tuberculosis compared with 2,692 for November. There were almost twice as many cases of measles reported during December as during November when 1,465 cases were recorded. Only 661 cases of typhoid were reported for December, a decrease of 100 cases as compared with November, although a slight increase as compared with the corresponding month of 1910, when 577 cases were reported. Whooping cough was not prevalent as in November when 739 cases were recorded, while the December record shows only 662 cases. Small-pox reported 166 cases. This disease is present in at least eleven counties. December gave 170 deaths from diphtheria which was unusually few for that month and the year ended with a record of 2,000 deaths from that disease the lowest on the annals of the state. In the thirten years 1885-1897 there occurred 71,043 deaths from diphtheria, while in the following thirteen years there were 35,460, or less than one-half as many, notwithstanding the increase of population from 6,000,000 to 9,000,000.

New York City

Harvey Society Lecture.—The tenth Harvey Society lecture given at the New York Academy of Medicine on March 3, at 8:30 p. m., is by Prof. H. S. Jennings of Johns Hopkins University on "Old Age, Death and the Meaning of Conjugation in Lower Animals."

Medical Library on Inspection.—The Medical Library Association of Brooklyn announces a public inspection of the Brooklyn Public Library, which includes many very old printed books and many manuscripts, at the library building, March 25-30, from 3 to 5 and from 8 to 9 p. m.

Personal.—Dr. Alvah H. Doty has been elected a member of the medical advisory board of the Department of Health.——Dr. Stephen Smith, president of the State Board of Charities, celebrated his eighty-ninth birthday, February 19.——Dr. Joseph O'Connell, Brooklyn, has been made health officer of the port of New York.——Dr. Frank Dietrich, ambulance surgeon at the German Hospital, was seriously injured in a collision between the ambulance and a street car.

Venereal Diseases Now Reportable.—At the regular weekly meeting of the Board of Health on February 20 the Board of Health adopted resolutions calling for the reporting of venereal diseases to the department of health in accordance with a plan for the sanitary control of such diseases which has been under consideration for many months past. The Board of Estimate and Apportionment has granted the appropriation of $55,000 which the Board of Health asked for the purpose of erecting a new venereal disease hospital to be situated on North Brother Island. The resolutions adopted require that superintendents and those in charge of public institutions including all institutions which are supported in full or in part by voluntary contributions, shall report promptly to the Department of Health the name, age, sex, nationality, race, marital state and address of every patient under observation suffering from these diseases. All physicians are requested to furnish similar information concerning private patients except that the name and address of the patient need not be given. If these conditions are complied with the Board of Health will make the sero-diagnostic test for syphilis and for gonorrhea. Apparatus and directions for the drawing of blood may be had on application and only glassware specially prepared by the research laboratory may be used. With the apparatus an outline for the history of the patient is also sent. All data obtained in connection with these facts will be for laboratory use only and not accessible to the public. The tests will be made free of charge for those unable to pay, but will only be made at the request of the physician in charge of the case. If it is desired the blood will be drawn

at the Research Laboratory on Mondays and Thursdays between the hours of 10 and 12. Usually a positive reaction is not obtained in syphilis within six weeks to three months from the time of infection, nor within six weeks in cases of gonorrhea. A negative reaction does not exclude the possibility of infection either before or after treatment. Patients should be advised against the ingestion of alcohol within twenty-four hours of the collection of the specimen of blood as it interferes with the accuracy of the test.

NORTH DAKOTA

New Officers.—Northwestern District Medical Society: president, Dr. Andrew Carr; secretary-treasurer, Dr. Frank E. Wheelon, both of Minot.——Cass County Medical Society: president, Dr. Martin P. Rindlaub; secretary, Dr. William C. Nichols, both of Fargo.

Personal.—Lieut. Henry G. Fish Hope, M.C., N.G., N. Dak., Wheatland, has been placed on the retired list with the rank of captain and Dr. Arnt G. Anderson, Hillsboro, has been appointed first lieutenant in the Medical Corps in his stead. ——Dr. Harry W. Miller, Jamestown, has returned from Europe.

PENNSYLVANIA

Hospital Notes.—The plans for the Amanda Howard Memorial Building, to be a $15,000 addition to the Williamsport Hospital, have been approved.

Reading Sewage Criticised.—Dr. Samuel G. Dixon, State Health Commissioner, notified Mayor Stratton of Reading, February 23, that the sewage filters of that city were overtaxed and that another unit is needed at the disposal plant. The purification of the city's sewage means a great deal to Philadelphia, as that city obtains its drinking water from the Schuykill. Reading has already spent $5,000,000 to purify its sewage.

Typhoid at Coatesville.—Although up to February 24, 220 cases of typhoid had been officially reported to the Board of Health of Coatesville, the authorities feel that crisis is passed and that no new cases are developing. The regular and emergency hospitals are filled and the Masonic Lodge and Elk banquet rooms have been offered as emergency hospitals and two fire companies offered their services for ambulance and patrol duty. State inspectors have been sent to Christiana, where seven cases have been reported. The town council will have a filtration plant installed at once, at a cost of $5,000.

Personal.—Dr. Logan E. Hull, Altoona, has been elected a member of the staff of the Altoona Hospital.——Dr. Walter A. Landry, Chester, who has been ill with pneumonia, is reported to be convalescent.——Dr. William G. Johnson, Major M.C., N.G., Pa., assigned Sixteenth Infantry, has resigned.—— Dr. Lewis Edwards, Kingston, has resigned as a member of the staff of Mercy Hospital, Wilkes-Barre.——Dr. Edwin C. Bullock, Upland, has been appointed a member of the staff of the Jefferson Hospital and will specialize in diseases of children.——Dr. Francis R. Crawford, Pittsburgh, has been appointed resident physician at the Clifton Springs (N. Y.) Sanatorium.——The following appointments have been made on the staff of the Williamsport Hospital: genito-urinary surgery, Dr. John P. Harley; diseases of children, Dr. George R. Drick, and Drs. Robert K. Rewalt and Fred. W. Meddaugh have been added to the dispensary staff.

Philadelphia

Personal.—Dr. Henry E. Applebach was assaulted and robbed near Bryn Mawr, February 14.——Dr. Joseph Cook, Jr., has resigned as resident physician at the University Hospital, Philadelphia, and will go to Persia as a medical missionary.

Hospital Ward Quarantined.—A small child admitted to a private room in Ward B of the University Hospital, February 10, for operation, about a week later developed scarlet fever, and was removed to the Municipal Hospital and Ward B has been under quarantine.

University Day.—Dr. Edwin Anderson Alderman, president of the University of Virginia, delivered the address at the exercises of the University of Pennsylvania, February 22, and six honorary degrees were conferred. A portrait of Dr. James Tyson, emeritus professor of medicine in the university, was presented by the physician's friends and former students. Dr. William Pepper made the presentation speech and Dr. J. William White received the portrait in behalf of the university.

Weir Mitchell.—Dr. S. Weir Mitchell, neurologist, author, poet and naturalist, celebrated his eighty-third birthday anniversary, February 15.——On February 22 he delivered an address on George Washington on the thirty-sixth commemoration day of Johns Hopkins University, Baltimore, and had conferred on him the honorary degree of LL.D.——At a special meeting of the College of Physicians and Surgeons of Philadelphia, in conjunction with the Section on General Medicine, February 26, Dr. Mitchell delivered an address on "Some New Facts Concerning William Harvey."

Prevention of Social Disease.—At the February 20 meeting of the Pennsylvania Society for the Prevention of Social Disease, the subject for discussion was prostitution as the means of the spread of contagious diseases. Dr. Howard A. Kelly, Baltimore, treated the failure of reglementation of prostitution in European cities and countries; the superintendent of police described the conditions now existing in Philadelphia, with respect to public prostitution; the director of public safety detailed the methods and means planned for the elimination of public prostitution in Philadelphia, and the director of public health defined the attitude of the department of health toward prostitution as a health problem.

UTAH

Personal.—Dr. Samuel G. Paul was reappointed health commissioner of Salt Lake City, February 15; Dr. Hugh B. Sprague, police surgeon and assistant health commissioner, and Dr. Robert W. Fisher member of the board.——Dr. Clarence Snow has succeeded Dr. Franklin H. Raley as a member of the board of health of Salt Lake City.——Dr. Francis S. Bascom has been elected a member of the board of education of Salt Lake City.

Board of Health Laboratory.—Arrangements have been consummated whereby the state board of health laboratory is to be connected with the medical school of the University of Utah and the state bacteriologist is to be professor of bacteriology at the university. While this has been nominally the case for three years past, sufficient funds have never been provided for the maintenance of the institution, and consequently the work has been done on a very meager scale. Through the efforts of Dr. Ralph L. Byrnes, professor of bacteriology in the university, funds have been made available, so that the laboratory is now able to do its proper work.

VIRGINIA

Small-Pox in Virginia.—The State Health Department has sent out warning that small-pox is scattered through twelve counties of the state.

Health Officials May Organize.—A number of health officers of tidewater Virginia met in Norfolk, February 7, to discuss plans for organizing a health association, to be composed of the health officers of that section of the state.

Health Train.—To carry the gospel of good health to farmers, the State Health Department has detailed Dr. Allen W. Freeman, Richmond, assistant health commissioner, to accompany the agricultural train on making a tour of the state.

Tuberculosis Society Incorporated.—A charter has been granted to the Tuberculosis Society, Incorporated, formerly known as Pine Camp, located in Henrico County, the object being the maintenance of a sanatorium for the treatment and cure of tuberculosis.

New Pavilion for Sanatorium.—The Catawba Relief Sanatorium Association has raised the $1,500 necessary to cover the amount offered by S. T. Morgan to complete the proposed pavilion at the Catawba Sanatorium.——The Graduate Nurses' Association has collected $500 of the $1,000 to be secured.

Hospital Opened.—St. Elizabeth's Hospital, Richmond, a private institution built by Drs. J. Shelton Horseley and Claude C. Coleman, was opened for inspection, February 14, and received patients on the following day. The building is located on West Grace Street, is four stories high and constructed of fireproof material.

New Officers.—The South Side Virginia Medical Association: president, Dr. Japheth E. Rawls, Suffolk; secretary-treasurer, Dr. Emmett F. Reese, Courtland.——Richmond Academy of Medicine and Surgery: president, Dr. Alfred L. Gray; secretary, Dr. Mark W. Peyser.——Richmond Medical Association (colored): president, Dr. Albert A. Tennant; secretary, Dr. Jeremiah M. Newman.

Inspection of School Children.—The physicians and dentists of Fredericksburg, through their respective organizations, have offered to make without charge a careful examination of each child in the public schools of the city, in order to detect any existing contagious diseases or physical defects, and give to the parents of the children ample notice, so that the defects found may be remedied.

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Personal.—Dr. William S. Love, Winchester, who has been seriously ill with pneumonia, is reported to be convalescent. ——Dr. Herbert Mann, Richmond, has assumed his duties as surgeon at the State Penitentiary.——Dr. Samuel B. Moore, Alexandria, has been reappointed coroner of Alexandria County.——Dr. Clarence T. Lewis, Staunton, who has been seriously ill with bronchitis, has recovered.

GENERAL

Finlay and Agramonte Proposed for Nobel Prize.—Dr. Carlos J. Finlay of Havana, Cuba, first suggested the possibility that the mosquito might be responsible for the transmission of yellow fever, and preached this for many years before the fact was finally established by the American Commission. The *Revista de Medicina y Cirugia* of Havana is urging that the Cuban Academy of Sciences take the necessary steps to present his name as a candidate for the Nobel prize in medicine this year. Our Havana exchange suggests further that the name of the only surviving member of the American Commission be linked with Finlay's and the prize be asked for the absolute triumph of an idea, and that it thus be divided between the originator and the surviving practical worker out of the idea, Finlay and Aristides Agramonte. The *Revista* expresses the hope that American scientific societies will cooperate in the effort to obtain this manifestation of appreciation of the benefits conferred on the world by the discovery of the mosquito transmission of yellow fever, and hence its effectual prophylaxis. None of the Nobel prizes in medicine has yet crossed the Atlantic, and only one of the thirty-three prizes in three branches of science that have been awarded during the eleven years since the Nobel prizes have been distributed. This one scientific prize that has come to America was the prize for physics, conferred in 1907 on Professor Michelson of the University of Chicago.

FOREIGN

Ross in Russia.—Prof. Ronald Ross of the Liverpool School for Tropical Medicine, recently visited St. Petersburg, on which occasion an honorary degree was conferred on him by the Military-Medical Academy, and the local medical society elected him an honorary member.

Campaign Against Plague in Southern Russia.—Dr. Sabolotnyi has recently been given powers and means to enlarge the scope of the campaign against plague which seems to be endemic in the Astrakhan district. He has organized nine flying squadrons for bacteriologic examination of all the camels in the district, and the insects and rodents near the habited parts are to be systematically investigated for the presence of plague.

Penalty for Adulterating Liquor with Methyl Alcohol.—The court of appeal at Szegedin, Hungary, recently reaffirmed the fine imposed by the lower court on a liquor dealer and his servant for adulterating liquor with wood alcohol in 1909. The court of appeal added a three months' prison sentence to the fine of $750 (3,000 kronen) for the manufacturer; the employee was let off with a fine of $50. The adulterated liquor was responsible for fifty-nine deaths.

Deaths in the Profession Abroad.—In addition to the deaths mentioned by our foreign correspondents, the profession has lost recently: Dr. A. Serafini, professor of hygiene at the university of Padua. Dr. M. Ledesma of Madrid, assistant general sanitary inspector of the Spanish army, and dean of the Facultad de Medicina. From Madrid is reported further the death of Dr. Ribera y Sans, one of the leading surgeons of Spain, aged 59. From Zurich is reported the death of Dr. F. Simon, who had made a specialty of bacteriologic research for fifteen years, mainly on the streptococcus, finally succumbing to a laboratory streptococcus infection.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Feb. 17, 1912.

Lord Lister's Funeral

Lord Lister, a report of whose life, achievements and death was given in THE JOURNAL, February 17, pp. 485 and 499, had long ceased work and had been in failing health for some years. The funeral took place yesterday, and, as was befitting, his remains were offered sepulcher at Westminster Abbey, where rest our great dead, but as he expressed a wish to be buried with his wife, this was declined by his executors, and the interment took place at Hampstead. The funeral service was held at the Abbey and was attended by representatives of the king and the learned societies of this and other countries, the universities and other learned bodies, and by the foreign ambassadors, the prime minister and other distinguished persons.

From an early period of his career he was deeply impressed by the great mortality of operations and severe injuries attended by external wounds, such as compound fractures. In those days almost every operation was followed by what was termed "surgical fever." Lister became acquainted with the great discovery of Pasteur, that fermentation and putrefaction are due to microbes. He recognized that the wound complications were due to putrefaction from the same cause and grasped the surgical possibilities. His first idea was to kill the germs already admitted to wounds and then to prevent the entrance of others. The first agent he selected for this purpose was phenol (carbolic acid). His articles, which inaugurated the antiseptic system, were published in 1867 in the *Lancet* under the title "A New Method of Treating Compound Fractures, Abscesses, etc." He freely applied phenol (carbolic acid) to the interior of the wounds in order to destroy the air-borne germs, and covered the opening in the skin with lint charged with phenol and protected by an external layer of thin sheet metal. His results showed a marvelous improvement. Hospital gangrene, pyemia and erysipelas, which had been frequent in his wards, disappeared. With indefatigable industry he constantly experimented to improve his technic, using in turn phenolized putty, phenolized shellac, the phenol spray, perchlorid of mercury, sal alembroth and double cyanid of mercury and zinc. His appointment as professor of clinical surgery at King's College gave greater opportunities for the diffusion of his teaching, which now was receiving much attention abroad, as well as at home. Indeed, the antiseptic system was earlier recognized by foreign than by British surgeons. The conservatism of his own country proved a strong barrier, as it has always done, to reforms, however great and beneficent. Some of the leading surgeons of the day not only refused to adopt the antiseptic system, but violently opposed it. Even a man of the eminence of Sir James Simpson wrote a lengthy article to prove—what was already admitted—that Lister was not the first to use phenol and that his methods were not original. Sir William Savoury, the most eloquent surgeon of the day, who enjoyed the unprecedented distinction of being president of the Royal College of Surgeons for five years in succession, threw ridicule on the antiseptic system. Lawson Tait, the greatest and most original gynecologist of the day, adopted the same attitude. But, like Darwin, Lister never descended to controversy; he was too busy with research. So bitter was some of the opposition to him in high places that, incredible as it may seem, the Royal College of Surgeons never honored itself (for that is the way to put it) by appointing him president. It was said of him in 1900 that he had saved more lives than had been destroyed in all the wars of the century. Proposing his health at a dinner of the Royal Society, Mr. Bayard, the American ambassador, said, "My lord, it is not a profession, it is not a nation, it is humanity itself which salutes you."

He made one discovery which, even apart from the antiseptic system, would entitle him to enduring fame—the absorbable catgut ligature. He found that silk ligatures were a source of trouble in his treatment of wounds because of the irritation and suppuration which sometimes followed. He experimented by tying the arteries of dogs and calves with catgut and found that it underwent complete absorption without causing suppuration. He applied the result to man and was able to announce that surgeons "may now tie an arterial trunk in its continuity close to a large branch, secure alike against secondary hemorrhage and deep-seated suppuration." He subsequently evolved the chromicized catgut ligature. He made many other important contributions to surgical knowledge which have been overshadowed by his great discovery. As a man, he was singularly modest and unassuming, and his solicitude and gentleness with patients were almost feminine. It is related of him that when speaking to the great Austrian surgeon, Billroth, who was skeptical about the antiseptic system, he simply said, "If you tried it I am sure you would be pleased with it."

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Feb. 9, 1912.

Three New Deaths from Salvarsan

On February 9, Dr. Gaucher, clinical professor of cutaneous and syphilitic diseases at the Faculté de médecine de Paris, reported before the Académie de médecine three new cases of death due to salvarsan. The first was the case of a young man of 24, of good general health and free from other dis-

case, who had contracted syphilis two years previously. The case had been well treated, and there were no manifestations after the roseola. Against the advice of his physician, he went to Paris, and although he had at the time no manifestation of the disease, he went to a physician who in thirteen days gave him three intravenous injections of 0.03 gm. salvarsan. The day after the third injection he went home, and six days later, after violent headaches, he was stricken with convulsions, soon fell into coma, and died in twenty-four hours.

The second case was reported to Professor Gaucher by Dr. Vaubourdolle of Blédé. A man aged 53 had contracted syphilis in 1894. Three years afterward, he had a right hemiplegia, due to a cerebral arteritis, which was cured by specific treatment, leaving only a little paresis, with a tendency toward contraction of the leg. In spite of Dr. Vaubourdolle's opposition, the patient had another practitioner give him an intramuscular injection of 0.03 gm. of salvarsan. Two days afterward, there were generalized pains in all the limbs, accompanied by a persistent headache, and the patient died suddenly twelve days after the injection.

The third case was reported by Dr. Yakoub, surgeon in chief of the Bulgarian hospital at Constantinople. The patient was a woman aged 25, who had been married five years. She had been infected by her husband, who had contracted syphilis a year before her marriage. In the first year of her married life she had had a miscarriage at three months and a half, and a year afterward she gave birth at term to a child that died at the age of 10 months of meningitis. This woman, when she had been pregnant six months and a half and presented only a buccal leukoplasia without any visceral lesion, received on Dec. 17, 1911, an injection of 0.04 gm. salvarsan in the right basilic vein. After the usual discomforts of the first day, the patient was very well the two following days. December 20, however, she was seized with nausea, vomiting and violent headache. At midnight, she lost consciousness; the next day, she was in coma. Lumbar puncture drew off a limpid normal liquid. The urine contained no albumin. December 22, the coma persisted, the face and the extremities became cyanotic, the respiration became Cheyne-Stokes in character, and, in spite of a blood-letting of 200 gm., the patient died the same day at noon.

Glycerin in Food

Some manufacturers have asked the minister of agriculture whether glycerin is to be considered an alimentary substance. It is used in the manufacture of certain drinks, effervescent lemonade and in syrups and jellies and in the preparation of pastes from which gum drops are made in order to avoid hardening. The superior council of hygiene consulted by the minister decided that it was not. It appears from the report presented by Dr. Pouchet, professor of pharmacology and materia medica at the Faculté de médecine de Paris, that without being considered a food glycerin may play an important accessory rôle in alimentation on condition of being used in small proportions and occasionally. The constant elimination by the kidneys and liver may not be without inconvenience, as has been shown by the experience of Dujardin-Beaumetz and Audigé. In short, it is rather a drug than a foodstuff and its use ought not be considered compatible with hygiene. Dr. Pouchet proposes therefore that the use of glycerin as a food substance should not be authorized and this conclusion was adopted.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Feb. 9, 1912.

Personal

The chair of ophthalmology at Berlin is finally filled. Professor Krückmann, professor of ophthalmology at Königsberg, a pupil of the Leipsic ophthalmologist Sattler, has accepted the call.

Professor Theobald Smith, of the chair of comparative pathology at Harvard University, our first medical exchange professor, delivered a short time ago his inaugural address, entitled "Parasitismus und Krankheit." It was published in the last number of the *Deutsche medizinische Wochenschrift*.

Kaiser Wilhelm Society for the Advancement of Science

The Kaiser Wilhelm Gesellschaft zur Förderung der Wissenschaften, founded under the protectorate of the Kaiser about eighteen months ago, already has 169 members, a quite considerable number when it is remembered that the smallest contribution for which membership can be obtained is $5,000 (20,000 marks), and the annual dues are $250. The members of the society come from all parts of Germany and even Germans residing in foreign countries belong to it. I have already reported the establishment by the society of the Kaiser Wilhelm institute for chemistry at Dahlem. In addition the society has bought a biological institute in Rovigno, which was founded by a German. Next a great institute for the investigation of development and heredity is to be founded. As additional fields of biologic research, to which the society purposes extending its activities, may be mentioned experimental therapy, the study of the brain, and microbiology. In addition it has favored radium investigation by grants to individual investigators in their research. Of investigations which belong to the field of the historical sciences, the archæologic are especially to be advanced.

Assumption of First-Aid Service by the City

At yesterday's meeting of the city council, the proposal of the city executive (*Magistrat*) that the city shall assume the entire first-aid service April 1, 1913, was adopted. For the management of the first-aid work and for the establishment of the principles on which the municipalizing shall take place, a special board is to be appointed. For perfecting the organization a committee selected by the council is to advise, and it is to be hoped it will be successful in removing the differences which exist between physicians and the accident stations.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Feb. 10, 1912.

Personal News

Among the teaching staff of the University of Vienna several important changes will take place shortly. Thus the otologist Hammerschlag and the famous rhinologist Hajek will be appointed professors in a few weeks, while Dr. Bondy will be made privat docent in otology. Docent Kahler, the assistant of Chiari, has been offered the clinic of Killian in Freiburg, who in his turn has been appointed to Berlin. Dr. Kahler, the son of the once famous physician, has done remarkable work on broncho- and tracheoscopy and deserves the high distinction of succeeding a man of Killian's reputation.

Increased Prices of Drugs in Austria

Since the list of remedies contained in the Austrian Pharmacopeia is official, compiled by the Ministry of the Interior, the same body also issues the price-list for the drugs and remedies, at least as far as charges for the prescriptions are concerned. The public has recently had the unpleasant surprise to learn that nearly all alkaloids will now be from 80 to 100 per cent. dearer, especially codein, morphin and atropin. For menthol, chloroform and alcohol 40 per cent. more will be charged, for ipecac 60 per cent., and even phenol, rhubarb and milk sugar are higher. The manipulations in dispensing a prescription are also charged for, so taken along with the increased fees for the physician—nearly everywhere adopted—disease will be more expensive than ever before.

Marriages

HAROLD EDWARDS HERSH, M.D., Palmerton, Pa., to Miss Nell Fulweiler of Germantown, Philadelphia, at Palmerton, February 15.

MICHAEL WEBSTER STOFER, M.D., New Franklin, Pa., to Miss Emma S. Wood of Guyencourt, Del., at Philadelphia, February 10.

CHARLES B. CALLARD, M.D., Boise, Ida., to Miss Ellen Smith of Bloomington, Neb., at Pocatello, Ida., February 13.

WILLIAM T. MOYNAN, M.D., to Miss Alice Gardiner, both of New York City, at Greenwich, Conn., February 14.

HENRY E. WASHBURN, M.D., Clinton, Ind., to Miss Anna Dyer of Indianapolis, at St. Louis, February 12.

GUSTAV H. WOLTERECK, M.D., Baltimore, to Miss Helen Edith Black, at Ridley Park, Pa., February 14.

KURT HERMANN THOMA, M.D., Freiburg, Baden, to Miss Louise Bird of Newton, Mass., February 13.

WALTHER EUGENE RAHTE, M.D., to Miss Helen Rosalie Evans, both of Philadelphia, February 14.

DAVID D. SCANNELL, M.D., to Miss Elizabeth A. Macdonald, both of Boston, February 14.

Deaths

Henry C. Ghent, M.D. Jefferson Medical College, 1852; Medical College of Virginia, Richmond, 1863; Kentucky School of Medicine, Louisville, 1883; fourth vice-president of the American Medical Association in 1884-1885; president of the Texas State Medical Association in 1884-1885; president of the Central Texas State Medical Association, from 1886 to 1889; president of Bell County Medical Society, in 1883; surgeon in the Confederate service throughout the Civil War; a member of the state legislature in 1872; a pioneer resident of Bell County; died at his home in Belton, February 13, from pneumonia, aged 80.

John Fletcher Powell, M.D. University of Maryland, Baltimore, 1853; formerly demonstrator and professor of anatomy in Washington University Medical School, Baltimore; acting assistant surgeon U. S. Army and city jail physician of Baltimore during the Civil War; for fifty-five years a member of the Medical and Chirurgical Faculty of Maryland; died at his home in Baltimore, February 15, from senile debility, aged 81.

Minnie Clifton Archer, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1894; a member of the American Medical Association and a prominent specialist on diseases of the eye, ear, nose and throat of Houston, Tex.; died at her home, February 8, from pneumonia. The Paris County Medical Society at its meeting, February 9, adopted resolutions of respect and regret regarding Dr. Archer, and then adjourned.

Regay Leslie Baker, M.D. Kentucky School of Medicine, Louisville, 1893; Jefferson Medical College, 1894; a member of the American Medical Association; coroner of Peoria County, Ill., from 1904 to 1908; died at his home in Peoria, February 14, from the effects of a gunshot wound of the head self-inflicted, it is believed, with suicidal intent, while temporarily insane, aged 40.

Peter Windt Brakeley, M.D. University of Pennsylvania, Philadelphia, 1869; sometime president of the township of Dunellen, N. J., and mayor of the borough; for several terms president of the board of health and board of education; once coroner of Middlesex County, and postmaster of Dunellen under President Roosevelt; died at his home, February 12, aged 68.

Gustave Ettmueller, M.D. University of Leipzig, Germany, 1867; a member of the Missouri State Medical Association; physician of Cole County; formerly secretary of the board of health, health commissioner and city physician of Jefferson City, and a member of the board of managers of State Hospital No. 1, Fulton; died at his home, February 11, aged 70.

Ralph Melville Mead, M.D. Long Island College Hospital, Brooklyn, N. Y., 1882; a member of the Medical Society of the State of New York; for six years attending physician to Seney Hospital and visiting physician to St. Joseph's Institute for Deaf Mutes, Brooklyn; died at his home in that city, February 16, from cerebral hemorrhage, aged 54.

Edgar Thomas Newsome, M.D. Harvard Medical School, 1897; once superintendent of the Cope Sanitarium, Nashua, N. H., but who later gave up practice to become manager and treasurer of the Asbestos Metal Protective Company, Beaver Falls, Pa.; died in the New Brighton General Hospital, Beaver Falls, February 6, from typhoid, aged 37.

Benjamin Pearson, M.D. Jefferson Medical College, 1881; for fifty years a practitioner and at one time health officer of Slippery Rock, Pa.; one of the founders and for twenty-one years a trustee of the Slippery Rock State Normal School; consulting physician to the Mercer State Hospital; died at his home, February 12, aged 73.

William Alexander Clementson, M.D. Jefferson Medical College, 1894; a member of the American Medical Association and one of the most prominent practitioners of the Turtle Creek Valley; a specialist on diseases of the nose and throat; died at his home in Swissdale, Pa., February 16, from pneumonia, aged 39.

Anna Hutchinson Searing, M.D. University of Michigan, Ann Arbor, 1872, and one of the first women graduates from the institution; until 1895 a practitioner of Rochester, N. Y., and since that time a resident of California; died at the home of her nephew at Chula Vista, February 3, from senile debility, aged 82.

Carl C. Leeper, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1880; a member of the American Medical Association and a practitioner of Braymer, Mo.; died in the South Side Hospital, Kansas City, Mo., February 21, from diabetic gangrene, aged 55.

Thomas Graham McConkey, M.D. University of Pennsylvania, Philadelphia, 1890; formerly visiting physician to the San Francisco City and County Hospital, and professor of clinical medicine in the Hahnemann Medical College of the Pacific; died at his home in San Francisco, February 15, aged 52.

George Reinman Herst, M.D. University of Pennsylvania, Philadelphia, 1898; a member of the Medical Society of the State of Pennsylvania; a member and chairman of the civil service commission of Pittsburgh; died in Mercy Hospital in that city, February 16, from septicemia, aged 38.

William W. Kirby, M.D. Tufts Medical School, Boston, 1901; a member of the American Medical Association; for several years examining physician for the fire department of Providence, R. I.; died suddenly in his office in that city, February 12, from cerebral hemorrhage, aged 42.

Edward Henry Murrell, M.D. University of Pennsylvania, Philadelphia, 1869; a member of the Medical Society of the State of Pennsylvania; for many years a practitioner of Lynchburg, Va.; died at his home in West Lynchburg, February 10, from senile debility, aged 86.

John Anton Hoffman, M.D. Miami Medical College, Cincinnati, 1889; of Pesotum, Ill.; a member of the American Medical Association; died in the Julia F. Burnham Hospital, Champaign, Ill., February 12, a week after an operation on an infected gall-bladder, aged 43.

Charles Joseph Finnegan, M.D. Rush Medical College, 1886; in the government service from 1893 to 1902, and later a practitioner of Coupeville and Anacortes, Wash.; died at his home in the latter city, February 12, from bronchial pneumonia and pleurisy, aged 47.

George Latimer, M.D. George Washington University, Washington, D. C., 1849; said to be the oldest alumnus of that institution and one of the oldest practitioners of the District of Columbia; died at his home in Washington, February 11, from senile debility, aged 87.

Franklin Nickerson, M.D. Harvard Medical School, 1863; surgeon in the Navy during the Civil War; a member of the Massachusetts Medical Society and a practitioner of Lowell since 1866; died suddenly at his home, February 14, aged 73.

Cunningham Wilson Darby (license, Clay County, Ala., 1887), a member of the Medical Association of the State of Alabama; for thirty-five years a practitioner of Clay County; died at his home near Goodwater, January 22, aged 60.

George S. Hunter, M.D. Vanderbilt University, Nashville, Tenn., 1882; of Bolton, Miss.; formerly a member of the American Medical Association; died in Jackson, Miss., February 12, from nervous prostration, aged 50.

Julius Levin, M.D. University of Maryland, Baltimore, 1905; formerly of Chicago; was found dead in his apartment in Johnstown, Pa., February 12, from the effects of accidental asphyxiation by carbon monoxid, aged 32.

George W. Batt, M.D. University of Buffalo, N. Y., 1856; surgeon of the Sixty-Fourth New York Volunteer Infantry during the Civil War; died at his home in Titusville, Pa., January 18, from senile debility, aged 79.

Seth Hill, M.D. Yale University, New Haven, Conn., 1866; a member of the Connecticut State Medical Society; of Stepney Depot; died in Bridgeport Hospital, February 5, from cancer of the stomach, aged 74.

Velona Alonzo Marshall, M.D. University of Vermont, Burlington, 1896; a member of the American Medical Association; died at his home in Moriah, N. Y., February 7, from pneumonia, aged 47.

Robert A. Bunch, M.D. Eclectic Medical Institute, Cincinnati, 1891; at one time president of the Indiana Eclectic Medical Society; died at his home in Muncie, Ind., from disease of the kidney, aged 59.

Henry Robert Schubert, M.D. University of Louisville, Ky., 1907; for two terms school commissioner of Cooper County, Mo.; died at his home in Jamestown, February 7, from typhoid fever, aged 42.

Robert Vaughn Salmon, M.D. University of Alabama, Mobile, 1875; a member of the Medical Association of the State of Alabama; died at his home in Dadeville, February 8.

John H. Stevens, M.D. Albany (N. Y.) Medical College, 1857; a pioneer practitioner of Montour, Ia.; died at his home in Rogers, Ark., February 9.

Kirby H. Smith, M.D. Vanderbilt University, Nashville, Tenn., 1891; died at his home in Arcadia, Fla., February 13, aged 45.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

PELLAGRACIDE AND EZ-X-BA

Fraudulent Nostrums Sold as Cures of Pellagra

It seems to be a recognized rule of quacks and nostrum manufacturers that the more hopeless the disease the more worthless and the more expensive should be the treatment or the drug offered to the afflicted. This, of course, is simply reducing human suffering to a commercial basis: the greater the suffering, both physical and mental, the more willing is the unfortunate victim to sacrifice everything on the promise of relief; the more hopeless the disease, the less object has the quack or nostrum manufacturer in going to unnecessary expense; where all drugs are worthless the cheapest will be used. This law has long been recognized in the case of cancer and tuberculosis "cures"; olive oil is considered sufficient for the former and flavored sugar for the latter.

The law of the quack and the nostrum faker is apparently finding application in the case of pellagra, a disease which is recognized as being very prevalent in the United States, especially in the South. The mystery surrounding the causation of this disease and the practical uselessness of most remedies

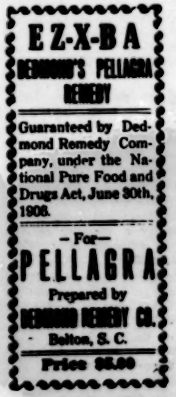

Fig. 1.—The label on the envelope containing the EZ-X-BA tablets.

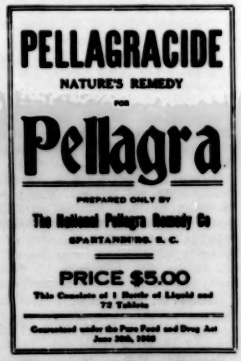

Fig. 2.—The "Pellagracide" label.

has already attracted both the cranks, who (let us be charitable) believe they have found remedies of value (especially for their pocket books), and the typical nostrum manufacturers.

THE JOURNAL has received several requests for information concerning some of these pellagra remedies. A typical letter is the following from a member of a state board of health of one of the southern states:

"I am sending you by express to-day the alleged remedy called EZ-X-BA, put up by the Dedmond Remedy Company as a cure for pellagra. They sell this remedy at $5.00. I am anxious to have an analysis of this stuff so that I may stop, if possible, the swindling of the public by its sale. It has a large sale in the mill villages of the state, a class of people who seem to be the prey of all the charlatans, quacks and swindlers of the country. Please send me report as soon as possible, and, if you can, take notice of same in the columns of THE JOURNAL of the American Medical Association."

Samples of this "remedy" consisted of an 8-ounce bottle of a liquid and of an envelope containing in some cases, 75, in others 34, sugar-coated tablets weighing about 2½ grains each. The envelopes had the label shown in Figure 1. The label on the bottle had, in addition, the words "NATURE'S COMPOUND." The circular accompanying the packages contained the following statements:

"This remedy contains no drugs, no chemicals, or anything that would injure the most delicate person."

"Nausea and nervousness usually follow in five to fifteen days after the treatment has been started, but this is an indication that the remedy is getting in its work."

"We guarantee the remedy, if taken according to directions, to cure pellagra. If, after taking a reasonable amount, you are not cured, we will refund your money."

More recently samples of what, apparently, was the same "remedy," but bearing a different label were received. A reproduction of the label on these bottles is shown in Fig. 2.

Since the U. S. Public Health and Marine-Hospital Service has for some time been conducting a study of pellagra, inquiry was made of the Hygienic Laboratory of this Service as to whether these preparations had been examined; the samples sent to THE JOURNAL were also forwarded to the Hygienic Laboratory. Dr. Hunt, professor of pharmacology of this laboratory, writes as follows:

"Our attention had already been called to these alleged remedies for pellagra and an examination of them undertaken in the division of pharmacology. The samples received from THE JOURNAL office were also examined; the results were as follows:

EZ-X-BA

The liquid of three of the bottles of EZ-X-BA had the same appearance; it was of a pale, yellowish color, with slight amounts of flaky material. The contents of a fourth bottle differed quite markedly from that of the others in that it was of a much deeper color, due, as was subsequently found, to the fact that it contained more than four times as much iron as the others.

The liquid was found on analysis to consist essentially of an aqueous, slightly acid solution of iron, aluminum, magnesium and calcium sulphates. The results of the analysis, expressed in grams per 100 c.c., showed the following minimum and maximum amounts of dissolved constituents in the different bottles:

	Gm. per 100 c.c.
Ferric oxid, Fe_2O_3	0.069 to 0.313
Aluminium oxid, Al_2O_3	0.963 to 1.079
Magnesium oxid, MgO	0.700 to 0.880
Calcium oxid, CaO	0.039 to 0.075
Sulphur trioxid, SO_3	3.811 to 4.092

The iron was present largely in the ferrous state. There were traces of the alkalies, silica, chlorids, and manganese. Alkaloids, arsenic, mercury, phosphates, plant extractives, etc., were absent. The flaky material consisted of a fungous growth; two forms of bacteria were also present.

The different lots of tablets after removal of the sugar coating had the following composition expressed in per cent. by weight:

	Per Cent. by Weight.
Ferric oxid, Fe_2O_3	5.3 to 6.2
Aluminium oxid, Al_2O_3	12.0 to 16.8
Magnesium oxid, MgO	3.5 to 3.8
Calcium oxid, CaO	5.4 to 9.8
Sulphur trioxid, SO_3	22.4 to 23.9
Starch	12.3
Cane sugar	14.6
Moisture, water of crystallization and hydration, traces of manganese, etc.	18.2

Alkaloids, arsenic, aloin, mercury and chlorids, etc., were absent.

PELLAGRACIDE

The sample of the liquid consisted of about 12 ounces of a straw-colored solution, similar in all respects to EZ-X-BA, suspended flaky material being also present. The analytical results were as follows:

	Gm. per 100 c.c.
Ferric oxid, Fe_2O_3	0.117
Aluminium oxid, Al_2O_3	0.856
Magnesium oxid, MgO	0.531
Calcium oxid, CaO	0.087
Sulphur trioxid, SO_3	3.220
	4.791

The iron was present almost entirely in the ferrous state. The tablets were contained in a small pasteboard box. The weight per tablet was found to be 0.35 gm. and after removal of the white coating as carefully as possible, the average

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weight of the interior mass was found to be 0.17 gm.; i. e., about 50 per cent. of the total weight. The analytical results on the powdered tablets (interior part) were:

	Per Cent.
Ferric oxid, Fe_2O_3	5.27
Aluminium oxid, Al_2O_3	12.83
Magnesium oxid, MgO	4.24
Calcium oxid, CaO	5.98
Sulphur trioxid, SO_3	22.86
Sugar, starch, water of hydration, etc., by difference	48.82

The results on both the liquid and tablets show that Pellagracide possesses essentially the same composition as EZ-X-BA. In fact the analytical results fall well within the limits of variation in composition reported above for EZ-X-BA.

SUMMARY

The analyses show that these alleged remedies for pellagra are of variable composition and contain no substances which could be reasonably expected to have any curative value in this disease; on the contrary, they would tend still further to impair the digestion and so aggravate the condition.

A similar preparation could be prepared at a nominal cost from the partially weathered iron-bearing minerals occurring abundantly in the South by digestion with dilute sulphuric acid."

How long will the United States government not only permit its afflicted citizens to be imposed on in this manner but actually aid the nostrum manufacturers by permitting the use of the "Guaranteed under the Food and Drugs Act" in a manner to lead even the intelligent to believe that the government has some control over such "remedies," and to afford such opportunities for the exploiters of nostrums to deceive the public?

Correspondence

The Texas Meningitis Epidemic

To the Editor:—In the Medical News columns (THE JOURNAL, Jan. 27, 1912, p. 287) reference is made to the meningitis epidemic in Texas in terms which have created a slight misapprehension regarding the relation of the Rockefeller Institute for Medical Research to the steps taken to combat that epidemic. While it is true that application for relief was made to the Rockefeller Institute by physicians and health authorities in Texas, the institute merely took the responsibility of seeing that a physician familiar with the serum treatment of meningitis was sent to Texas with the necessary supplies, and that his traveling expenses were paid. It appeared at once that a very competent physician to undertake this mission was Dr. A. Sophian of the Research Laboratories of the New York Department of Health, to whose immediate charge, under an arrangement with the department, the institute had recently given over the routine manufacturing and dispensing of the meningitis serum. Although the institute very gladly made itself responsible for the mission, it is only fitting that the generous cooperation of the department of health in immediately giving Dr. Sophian leave of absence and in supplying a large quantity of serum at cost should be recognized.

JEROME D. GREENE, New York,
General Manager, Rockefeller Institute for Medical Research.

The Management of Normal Labor

To the Editor:—In your comment in THE JOURNAL, February 10, on this subject, you say that the author may have had in mind the country practitioner—I only hope not. The fact must be admitted that it hits some country practitioners, and that the technic in the questionable method is identical, if not far in advance of the procedure which some follow. The application of petrolatum to the perineum would be about as effectual as skunk-grease, which our neighborhood grannies consider to contain so much virtue.

There is no excuse for the country practitioner not giving his patients the benefit of the latest and most approved methods, thereby preventing much of the trouble referred to by Dr. Frank H. Jackson, in THE JOURNAL, February 10, p. 429. I am a general practitioner in a small village, therefore I beg that due credit and consideration be given those of us who use modern technic and aseptic methods. I take as authority most of THE JOURNAL A. M. A. articles, but never the one on management of normal labor in the issue of January 27.

W. W. SCOTT, M.D., Bolivar, O.

The Army Canteen

To the Editor:—In reply to Dr. W. W. Keen's communications regarding the canteen I wish you would print the following clipping from the *Christian Work and Evangelist:*

"Just as the advocates of the restoration of the canteen in the army posts were making a concerted movement upon the government and were everywhere trying to arouse public opinion, the head commander of the Department of the East, General Frederick Dent Grant, has come out squarely and frankly against it. It has thrown a damper over the whole movement. We cannot help sharing General Grant's opinion that if the army were anxious to stop the visits of soldiers to the dives around the camp, and their purchasing of liquor there, they could do so. And we are not absolutely sure that the dives were not there before the canteen was abolished. And how about abolishing the dives instead of restoring the canteen?"

I am sure that all true temperance sympathizers in the medical profession regret the position Dr. Keen has taken and wish that his great talents might be employed for a worthier purpose.

JOSEPH PESTAL, M.D., Pearce, Ariz.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

METHOD OF PROCEDURE WHEN SUPPLANTED BY CONSULTANT

To the Editor:—I wish to make a point in relation to the position of Dr. B in the case cited in "Method of Procedure When Supplanted by Consultant" (THE JOURNAL, Feb. 3, 1912, p. 364). The answer says that "evidently the aggrieved Dr. A feels that Dr. B, who was left in charge of the patient, 'stole' the case. This may or may not be true." This evidence of Dr. A is more than an ex-parte statement. There is the following proof:

1. Dr. B has supplanted Dr. A, which is accepted.
2. Dr. B has not the candor to explain the case personally to Dr. A and sends him to the patient for information, showing his dishonesty in the matter. These circumstances are strong proof against Dr. B.

Accepting the case under the circumstances, on any excuse whatever, puts B in a compromising position and is an injury to his friend, who confided in him, as well as an injury to professional fellowship. The only honest course for B to take would have been to turn the case back to Dr. A, showing the patient by proper explanation the right, justice and importance to all concerned of continuing with Dr. A, since the evidence shows that he would have such influence, by the confidence exhibited; and to have nothing further to do with it, even were it impossible for him to induce the patient to return to Dr. A. She might have called in the third party, yet in that case he would have been clear of criticism and been true to his friend, to the ethics of medicine, and of common friendship, thus creating a closer tie between his friend and himself, besides a feeling of self-respect and ease of conscience. Nor would it even be well or honest to advise "that the consultant would accept a call at some future time when a physician's services were required." No such intimations should be made by one who wishes to be a true member of the medical profession.

If the patient in the future desires the services of Dr. B she will call him, if she has been so favorably impressed, without his bidding for patronage. To attend even under such circumstances is bad; it is a discourtesy to his friend, besides helping to encourage the tendency among some people of constantly changing physicians, which is exceedingly mischievous. The physician in such a case has the opportunity and should exert his influence in encouraging the habit of having a regular physician; in that way he will be sowing seed that will bring forth a harvest of good. J. J. C.

ANSWER.—We are pleased to note the ethical position of our correspondent. We must repeat, however, that the letter of C. N. D. is the statement of the case by Dr. A, or by his next friend, and so an "ex-parte statement." It is the indictment, rather than the "evidence" required to support the charge. Our answer stated that "as the letter presents the subject, 'the appearance of evil' calls for a statement from B." But B should not be judged until he presents his side. The

burden of proof lies with A; the benefit of any doubt belongs to B. We agree with our correspondent that it should not be necessary for the consultant to announce his willingness to attend the patient in some future illness. If the announcement is made, it should be with the purpose of making positive declaration of the determination of the consultant to withdraw from attendance on the case at the time.

To the Editor:—Please favor me with your opinion and advice concerning the following case:

C had been attending a patient for several days and D was called as consultant. Two more consultations were held in the course of about two weeks. The two physicians agreed as to diagnosis and treatment. After the third consultation the patient absolutely refused to allow C to treat her any more, though D advised her to continue with C and told her that he (D) did not want her case. But as she emphatically refused to receive treatment from C, D took the case after C was discharged. Did D do right in this case?

W. L. M.

ANSWER.—Here, D, the consultant, refused to become the physician in charge until after C had been dismissed. The conditions differ somewhat from those previously cited. After the patient had dismissed C, before taking the case, it would have been wise for D to have a heart-to-heart talk with C that they might mutually understand each other and their relations with the patient. Perhaps this course was followed. The right of the patient to choose her physician must be recognized. D should have C's consent before taking charge of the case. When, under these conditions, D becomes the attendant he is under greater obligation than he was as consultant to protect C's professional reputation from undeserved criticism, and must be especially guarded in conducting the case.

POISONING FROM GODFREY'S CORDIAL

To the Editor:—I was called to see a 10 weeks old baby—who was dead when I arrived—who had been given one-half teaspoonful of "Godfrey's Cordial" at 10:30 a. m. and died at 2 a. m. following. The baby had been given the medicine for a week. As described by the parents, the symptoms were similar to opium poisoning, but the child did not show a profound stupor.

W. B. SISSON, M.D., Kahoka, Mo.

ANSWER.—The composition of Godfrey's Cordial used to vary greatly and many different formulas have been published. The preparation now appears in the National Formulary as a synonym for Mistura Sassafras et Opii. Under the federal Food and Drugs Act this preparation must—if it enters into interstate commerce—correspond in composition to the National Formulary product, the formula of which is:

Oil of sassafrass	1 c.c.
Tincture of opium (U. S. P.)	35 c.c.
Alcohol	50 c.c.
Potassium carbonate	8 gm.
Molasses	325 c.c.
Water, a sufficient quantity to make	1,000 c.c.

By this, it will be seen that a teaspoonful (4 c.c.) of Godfrey's Cordial contains about 0.12 c.c. (2 minims) of tincture of opium corresponding to about 0.013 gm. (1/5 grain) of opium. Evidently the child referred to received, as a final dose, at least one-tenth of a grain—possibly more—of opium. In October, 1910, a newspaper clipping that came to THE JOURNAL office recorded the death of an infant from opium poisoning, the drug having been given in the form of a "soothing syrup." The coroner was written to and the information elicited that the preparation responsible for this death was Godfrey's Cordial.

It is much to be deplored that such a dangerous mixture as this should be designated as a "cordial." To the average individual, the term cordial gives the impression that the article bearing it is not only harmless but beneficial. If this shotgun mixture cannot be omitted from the next issue of the National Formulary, it is to be hoped that its synonym will be changed so as to render it less potent for harm. It is safe to assume that if "Godfrey's Cordial" were known and sold under the name "Godfrey's Opiate," the public would be more chary in using the mixture.

CALORIC METHOD OF INFANT-FEEDING

To the Editor:—Please refer me to any handbook or short work on the caloric method of infant-feeding. Also please give a list of articles published in THE JOURNAL during the past three years bearing on this subject.

J. F. ARGUE, Ottawa, Canada.

ANSWER.—The following brief works contain the information desired on the caloric method of feeding infants:

Judson and Gittings: Infant-Feeding, J. B. Lippincott Co., Philadelphia, 1902.

Chapin, Henry Dwight: Theory and Practice of Infant Feeding, William Wood & Co., New York, 1909.

Fowler, J. S.: Infant-Feeding, Oxford University Press, New York, 1909.

The following late books covering the whole subject of diseases of children also contain extended chapters on infant-feeding:

Holt, L. Emmet: Diseases of Infancy and Childhood, D. Appleton & Co., New York, 1911.

Fischer, Louis: Diseases of Infancy and Childhood, F. A. Davis Co., Philadelphia, 1911.

Chapin, H. D., and Pisek, G. R.: Diseases of Infancy and Childhood, William Wood & Co., New York, 1911.

Koplik, Henry: Infancy and Childhood, Lea & Febiger, Philadelphia, 1911.

The following papers on this subject have appeared in THE JOURNAL A. M. A. and the *American Journal of Diseases of Children:*

Brennemann, J.: Remarks on the Feeding of the Healthy Infant, THE JOURNAL A. M. A., July 11, 1908, p. 101.

Allen, T. G.: Criteria and Standards in Infant-Feeding, THE JOURNAL A. M. A., Nov. 14, 1908, p. 1687.

Lackner, E.: Heubner's System of Infant-Feeding Expressed in Calories and Energy Units, THE JOURNAL A. M. A., Oct. 16, 1909, p. 1267.

Bowditch, H. J.: A Convenient Method for Determining Caloric Values of Formulas Based on Percentage Feeding of Infants, THE JOURNAL A. M. A., Oct. 16, 1909, p. 1265.

Hess, J. H.: A Study of the Caloric Needs of Premature Infants, *Am. Jour. Dis. Child.*, November, 1911, p. 302.

Howland, John: The Fundamental Requirements of an Infant's Nutrition, *Am. Jour. Dis. Child.*, July, 1911, p. 49.

The Public Service

Medical Department, U. S. Army

Changes during the week ended Feb. 24, 1912.

Ingalls, R. E., dental surgeon, February 8, returned to Fort Douglas, Utah, from temporary duty at Boise Barracks, Idaho.

Manly, Clarence J., major, February 19, relieved from treatment at Walter Reed General Hospital, D. C., and granted thirty days' leave on surgeon's certificate of disability.

De Lancy, M. A., major, February 21, ordered to Philadelphia on official business pertaining to the medical department of the Army.

Medical Corps, U. S. Navy

Changes during the week ended Feb. 17, 1912.

Barber, G. H., medical inspector, commissioned medical inspector from Sept. 17, 1911.

Evans, S. G., surgeon, ordered to the naval medical school, Washington, D. C.

Baker, M. W., surgeon, commissioned surgeon from Nov. 17, 1911.

Eytinge, E. O. J., P. A. surgeon, ordered to the naval station, Guam.

Mink, O. J., P. A. surgeon, orders of January 24 revoked.

Schmidt, L. M., P. A. surgeon, detached from the navy recruiting station, Chicago, and ordered to the naval hospital, Norfolk, Va.

Trible, G. B., P. A. surgeon, detached from the naval hospital, Norfolk, Va., and ordered to the naval hospital, Washington, D. C.

Hathaway, G. S., P. A. surgeon, detached from the *New Orleans* and ordered home to await orders.

Schier, A. R., A. A. surgeon, detached from the marine recruiting station, Kansas City, Mo., and ordered to the marine recruiting station, Memphis, Tenn.

Changes during the week ended Feb. 24, 1912.

Taylor, J. L., P. A. surgeon, ordered home to await orders.

Stibbens, F. H., P. A. surgeon, detached from the *St. Louis* and ordered to the *Intrepid*.

Charlton, C. F., and Davis, R. G., assistant surgeons, commissioned assistant surgeons from Jan. 26, 1912.

Unusual Case of Foreign Body.—Bauman reports, in *New York Medical Journal*, the case of a man working on a wire-drawing machine, which took off four fingers of his right hand in June, 1909. He was taken to a hospital, where the stumps were treated and sutured, healing taking place by primary union. During the last two and one-half years he had been working more or less steadily, using his right hand as best he could. In January, 1912, he complained of a sticking pain in the stumps of one of his fingers, remarking that he had struck that finger a few days previously, since which time it had been painful. On examination a foreign body could be plainly felt, assumed to be a piece of bone chipped off when the finger was struck; but the *x*-ray disclosed a foreign body. Bauman cut down on the stump, under cocain anesthesia, and easily removed what proved to be the tip of a silver probe, half an inch long, left there at the operation two and a half years previously, and, strangely enough, giving the patient no inconvenience during this time.

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Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, Atlantic City, N. J., June 4-7.

Missouri Valley Medical Society, Colfax Springs, Ia., Mar. 21-22.

OBSTETRICAL SOCIETY OF PHILADELPHIA

Meeting held Jan. 4, 1912

The President, DR. EDWARD P. DAVIS, in the Chair

Cornual Pregnancy in the Normal Uterus

DR. EDWARD A. SCHUMANN: Cornual pregnancy is the condition resulting when the impregnated ovum becomes embedded in some portion of the cornua of the normal uterus. The attachment may be entirely on the cornual endometrium or the decidua may extend partially into the endosalpinx, producing a partial interstitial pregnancy. The condition is extremely rare. The diagnosis can be made on the general signs of pregnancy with the presence of a mass in either cornu. The terminations are usually rupture with profuse hemorrhage, or tubal abortion, or rarely the pregnancy may develop into the uterus and become a normal intra-uterine pregnancy. The treatment is dilatation of the cervical canal, and extraction of the fetus and membranes per vaginam or abdominal section with conservative treatment of the cornua and the tube.

DISCUSSION

DR. BARTON COOKE HIRST: I have seen three cases. In two I mistook the condition for ectopic pregnancy. The first case was that of a young woman four months' pregnant, who was seized with the most typical symptoms of ectopic gestation. There was a mass apparently alongside the uterus, which was itself enlarged. Immediate operation was done, and on opening the abdomen the cornu was found to be enormously enlarged, and it was possible to see the outlines of the fetal body through the thinned wall. After some discussion, we decided to take the risk of letting the pregnancy go on, prepared, however, to open the abdomen again if rupture occurred. The woman was kept in the hospital for a longer time than usual after section. She had several attacks of pain, but was delivered at term.

The second case was also one mistaken for ectopic gestation. The woman was seized with typical symptoms of ectopic pregnancy. We opened the abdomen and found that the pregnancy was not entirely ectopic, but distinctly cornual. There was a mass at one cornu about the size of a small apple, apparently connected with the uterine cavity. I put a pad over the abdominal wound without closing it, seized the cervix with a double tenaculum and inserted placental forceps. I managed with some difficulty to extract the mass through the narrow opening in one corner of the uterine cavity. The patient made a good recovery.

The third case appeared to be a cornual pregnancy and the outcome proved this to be correct.

DR. GEORGE ERETY SHOEMAKER: I have seen two cases of pregnancy in the cornu, one of which I reported as occurring in a bicornute uterus. I had opened the abdomen more than a year before for another purpose, and was therefore certain of the bicornute uterus. The pregnancy terminated in about four months in abortion by the vagina. The woman afterward became pregnant and was delivered of a living child from one of the divisions. In another patient the pregnancy occupied the cornu, but was so nicely balanced between the tube proper and the uterine cavity that the uterine tissue ruptured. When I opened the abdomen, supposing that I had an ordinary ruptured ectopic condition, the rupture was found to be in the uterus central to the position of the uterine artery and inside of the origin of the round ligament, showing that the pregnancy was interstitial. It was necessary to resect that portion of the uterus, which was done successfully. The woman became pregnant within three months from the time I operated. She developed very severe paroxysmal pains at about four months, and it was impossible to tell whether rupture was impending or not. After conferring with a number of surgeons, however, I decided to open the abdomen and do hysterectomy, and the patient recovered from that operation. The point is, whether it was wise to do a hysterectomy for the second pregnancy in the resected uterus to avoid rupture. As it turned out, I think it was not necessary, but it was a patient in whom the hysterectomy did not make any special difference.

DR. E. E. MONTGOMERY: Recently Dr. Herman Grad of New York reported a similar case which he calls an apical pregnancy. The pregnancy developed in the cornu of the uterus and with an opening into the uterine cavity, through which the pregnancy was subsequently moved. He also states that Kelly in a similar case after opening the abdomen punctured the membranes by a sound through the uterus, then closed the abdomen, allowing the contents to be expelled through the uterine cavity, and that he had seen six other cases of a similar character. The nearest approach I have had to a cornual pregnancy was in a woman in whose case a diagnosis of ectopic pregnancy was made. On opening the abdomen the pregnancy was found to be in one side of a double uterus; it had existed for three months. The wall was so thin and the woman suffering so much pain and distress that I felt it wise to remove the pregnant sac, which I did. The patient recovered and subsequently gave birth to a child through the portion of the uterus remaining.

DR. JOHN M. BALDY: I have not seen a case of cornual pregnancy, and have always doubted whether the condition really existed, as we understand cornual pregnancy in the normal uterus. The two cases spoken of by Dr. Shoemaker and Dr. Montgomery, in which pregnancy was found in bicornute uteri, do not appeal to me as cases of cornual pregnancy. We all know that there are different degrees of bicornute uteri, and I question whether a number of these cases of so-called cornual pregnancies are not instances of minor degrees of bicornute uteri. If these are true cornual pregnancies and occur in perfectly normal uteri, we should expect them to occur more frequently than reported. I think if some of these uteri could be examined carefully after involution has taken place in the light of the possibility of maldevelopment, this condition would often be found.

DR. COLLIN FOULKROD: In a case coming under my care in the past year the symptoms were those of the rupture of an extra-uterine pregnancy. The woman had passed one period and seemed to be pregnant, when without any vaginal hemorrhage, she developed a severe attack of pain in the region of the right tube, fainted, was anemic and shocked. A vaginal examination revealed a soft mass in and surrounding the right tube. The possibility of tubal gestation was considered. However, she improved rapidly and, refusing operation, traveled to her home some distance from town. She was there immediately taken ill, aborted a fetus, recognizable as such. She was curetted and recovery ensued. This appeared to be a case of cornual gestation. These cases, strictly speaking, are cornual pregnancies in normal uteri, and they usually give little trouble. Therefore, we are led to believe that the cases reported as cornual pregnancies may not have been in normal uteri.

Pseudomyxoma Peritonei: Report of a Case

DR. BARTON COOKE HIRST: The patient was a woman, 25 years of age. She had one child 4 years old, which she had nursed for three years, during which time there was no menstruation. The menses returned at the expiration of three years, when she weaned the baby, but were irregular and disposed to be scanty. Two weeks before I saw her she first noticed a beginning enlargement and complained of abdominal pain. I found shifting dulness in the abdominal cavity, with very great distention and considerable tenderness. There was no rise of temperature, no leukocytosis. I supposed the case would prove to be one of tuberculous peritonitis, but on opening the abdomen I found a typical case of pseudomyxoma peritonei. The free pseudomucin which I was able to gather up weighed 1½ pounds. There was a cyst the size of an orange, with a large opening in it from a rupture. The abdomen was well washed out. The peritoneum and intestines presented a characteristic appearance. The mortality

percentage of these cases has been surprisingly great. The tumor and pseudomucin are easy to remove, but the death-rate is very high, not necessarily immediately, but possibly after a number of years. The distention in my case disappeared under treatment in three or four days, and now the patient is making an excellent recovery and about to leave her bed and be discharged from the hospital. As should be done in all cases, we will keep her under observation as long as we can.

DISCUSSION

DR. EDWARD A. SCHUMANN: Two years ago I had occasion to collect the cases of pseudomyxoma peritonei in the literature. I found fifty-six cases, with sixteen deaths, a mortality of 31 per cent. This condition is variously termed foreign-body peritonitis, myxomatous degeneration of the peritoneum, pseudomyxoma peritonei and colloid carcinoma. Thus, the extravasated cyst contents may, for a time, remain passive in the abdominal cavity, giving rise to a low-grade peritonitis, due to the irritation of the foreign substances with the gradual overgrowth of connective tissue and the organization of the pseudomucin. Where the cells lining the original cyst wall continued to proliferate in the peritoneal cavity, forming secondary cystomata, the process was termed colloid carcinoma, which, in my opinion, is the true pathology.

DR. DANIEL LONGAKER: A few years ago I saw a very remarkable example of this condition. It was thought hydramnion was present. The woman was 40 years of age, and had borne a number of children. There was cessation of menstruation, and it was assumed that she was pregnant, supposedly about the ninth month. There was an enormous development which the attending physician and several consultants looked on as hydramnion. I differed in the given opinion. On section it was found that the patient had a universally disseminated colloid condition, which had originated in a ruptured ovarian cyst. We found the remnants of this cyst at the bottom of the mass. Every portion of the peritoneum was invaded up to and including the under surface of the diaphragm. Several bucketfuls were scooped out. This case followed the usual rule of a fatal ending. I think the general impression that the disease is necessarily malignant, leads one to look on it as a desperate one. I remember another case of the same kind. The patient recovered from the operation, but had a prompt recurrence and died a month or two afterward.

DR. J. M. BALDY: I have seen at least three cases. The third one made a strong impression on me and is very clear in my mind. I was much puzzled about what ought to be done. Operation revealed a small ovarian cyst, ruptured, with an amount of material in the abdomen so enormous that everything was involved. The material was taken away in handfuls and the abdomen washed out. At the time an ovarian cyst was beginning on the opposite side, but as the patient was a single woman it was not removed. Three years afterward she returned for operation for a large ovarian cyst, unruptured, of the same kind. The abdominal cavity was clear and clean of all former débris or adhesions, and the woman is alive to-day. I would be loath, in the light of that experience, to consider all cases carcinomatous. If they are, some of them must be of low type. I would not consider the case necessarily fatal, if I could make a fair removal of the material.

DR. E. E. MONTGOMERY: I saw a woman who had been tapped a week or ten days previously. The examination convinced me that there was free material within the abdominal cavity, which I concluded was so thick that it would not pass through the trocar at the time the tapping was done. I operated a few days later and removed two gallons of a thick, jelly-like fluid which had evidently escaped from a collapsed ovarian cyst. The entire peritoneal surface was covered with a thick layer of this material which could not be washed off. The abdomen was closed and the patient recovered with little difficulty. I was called to see the same woman a year ago for an abdominal enlargement. I found an irregular enlargement of the abdomen, and on vaginal examination found a proliferated mass which had perforated the posterior fornix of the vagina. A microscopic examination of this tissue showed a cylindrical cell carcinoma.

THE AMERICAN MEDICAL ASSOCIATION'S CONFERENCES ON MEDICAL EDUCATION, MEDICAL LEGISLATION AND PUBLIC HEALTH

Held in Chicago, Feb. 26-27, 1912

The Eighth Annual Conference of the Council on Medical Education of the American Medical Association was held at the Congress Hotel, Chicago, Monday, February 26, followed on Tuesday by the Conference of the Council on Legislation and Public Health.

The Monday session was presided over by DR. ARTHUR DEAN BEVAN of Chicago, whose opening address (in abstract) was as follows:

The Modern Medical School

The modern medical school must be developed as the medical department of the university. Its function will be (a) to turn out well-qualified practitioners of medicine, and (b) to add its quota to the definite knowledge of medical matters. To fulfil these functions the medical school must have (a) well-qualified students, (b) expert teachers, (c) well-equipped laboratories, and (d) ample clinical material.

I. MEDICAL STUDENTS

Medical students should be required to have had in addition to their preliminary and secondary education (a) one or two years devoted to higher physics, chemistry and biology; (b) should complete four years of medical study, and (c) take a year's internship in a good hospital. The council has long been of the opinion that this should represent the minimum requirement for the medical degree in this country. This would enable the student to graduate at about 25 or 26 years of age, whereas the extreme requirements of few of the medical colleges in this country delay the age of graduation to about 28 or 29 years—an extreme which does not prevail in England, France or Germany, which stand high in educational and scientific matters. Thirty years of age is altogether too late in life for the average medical student to complete his course and adopt himself to the development of a practice. Hence the council deplores the tendency of some university medical schools to extend their entrance requirements to three or more years of collegiate work. The highest extreme at the present time should not be more than two years of university science, and even this requirement should be accepted with the understanding that an attempt should be made in the near future to save a year somewhere in our preliminary or secondary school course. The two-year standard has already been quite widely adopted in this country.

The intern year in a hospital should be made a requirement throughout the country by state medical licensing boards within the next two or three years. That this would be a reasonable requirement is evidenced by the fact that there are now in this country at least 2,500 hospitals having twenty-five or more beds each, or having a total of at least 200,000 beds. There is no doubt that internships in the better portion of these hospitals could be provided for every one of the 4,000 senior medical students now enrolled in the medical colleges in this country.

II. TRAINED TEACHERS

Of great importance in connection with medical education in this country is a system by which specially trained medical teachers and research men in anatomy, physiology, pharmacology and pathology can be secured. At present it is very difficult to secure such teachers.

The chief reason that such work has not attracted high class men is that the medical schools have had no money to pay reasonable salaries. So the means of securing such teachers would be to provide better salaries, if not pensions also—through such agencies as the Carnegie Foundation—thus providing for old age of these teachers and for their families. The medical schools, therefore, could make these places more attractive by providing also an ample number of assistants and better facilities for teaching and research work.

The lack of well-trained medical men has led many of our medical schools to fill positions with men holding the Ph.D., men well trained in their special sciences, but lacking the medical training, and, therefore, lacking the medical point of view. It is probably the lack of the medical point of view which prevents such teachers from fully understanding the work of the clinical departments and correlating their work with those departments. Since there is so much to learn in a very limited space of time, the subjects of the medical course should be selected and taught by those who have received the

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complete medical training, and who are thereby in position to correlate these subjects with the other branches of the medical course.

CLINICAL TEACHERS

In only a few instances in this country have medical schools placed their clinical professors on a university basis—that is, placed them on definite salaries and limited them in their private practice. The same apparently holds true in Great Britain. The plan adopted by the German universities comes nearest to the ideal. There the clinical professor is chosen because of his scientific ability, receives a fair but moderate salary, and is made to feel that his university and hospital work is of first importance. He usually devotes at least four or five hours each day to his clinical cases, to teaching or to research work. It is recognized as proper and even desirable, however, for him to have some private practice, but it must in no way interfere with his university work. He is recognized as the highest authority in his special field, and his services can be secured by the rich as well as the poor. This in Germany is regarded as highly desirable, since the income from this private practice attracts and holds high-class men in the clinical chairs.

This private practice also keeps the professor in touch with the people and with the medical profession and makes him a more practical teacher. It prevents his forming wrong conclusions and becoming narrow, which might be the case were he confined to his laboratory and hospitals.

Not only, therefore, must the clinical professor be a great physician and trained teacher, but he must be competent to carry on, to direct and to stimulate research work. There is no higher type of medical research than scientific clinical research, and every medical school should provide ample means and ample material toward this end. Some of the best pieces of medical research have been along clinical lines, such as Lister's discovery of antiseptic surgery and Kocher's researches in connection with exophthalmic goiter. By removing a part of the thyroid gland Kocher proved that the symptoms of exophthalmic goiter were due to a hypersecretion of that gland—and won for himself the Nobel prize.

Under the clinical professor should be a number of salaried associates and assistants who would devote their entire time to clinical work, teaching and research. These men should be given living salaries, which need not be especially large, since the training they receive could be regarded as compensation of great value, and it is from those who have shown marked ability in this group that selections should be made of clinical professors.

We should, therefore, advise the trustees of our universities that in the organization of the medical department they must pay larger salaries and make provision for proper pensions in order to secure high-class men as teachers in the laboratory sciences, and these should be the best paid men in the medical faculty; that in the clinical branches the scheme of the German universities is the best model to follow—full university professors at the head of the departments on fair salaries, with the understanding that their university work has the first claim on their time, with the full understanding also that the university should secure for these chairs the leaders in the various specialties, and that, as the best method to attract and hold such men and to keep the university in touch with the profession and the people, a reasonable liberty to do private clinical work should not only be allowed but recognized as desirable.

The organization of the medical departments of our universities cannot safely be left with non-medical trustees or non-medical professors of the scientific department, since the premedical sciences are apt to be emphasized without regard to the medical curriculum as a whole; the laboratory courses are apt to be developed along impractical and undesirable lines, and the needs for the development of the clinical department cannot be fully appreciated. In fact, if these medical matters are left for their adjustment in non-medical hands, there would soon arise a deplorable disagreement between university teachers and medicine, similar to what Professor von Müller says exists in Germany between scientific jurisprudence and the practice of law. The reorganization of medical education in this country, therefore, must be made by the men who are most familiar with the facts and needs of the situation—the medical men themselves.

III. THE TEACHING PLANT

This comprises (a) the laboratories with the necessary equipment and material; (b) the hospitals and dispensaries with the essential equipment and material, and (c) sufficient endowment to carry on the laboratory and clinical work.

1. *The Laboratories.*—Four laboratories, or, better still, four separate buildings are essential; one for anatomy, including embryology and histology; one for physiology, including physiologic chemistry; one for pathology, including bacteriology, and one for pharmacology. To carry on the work of these four laboratories, at a moderate estimate, $40,000 a year would be necessary, and in a large university several times this amount might be required. The most important factor is the man in charge of the department. A strong man with inexpensive building and equipment will accomplish more than a mediocre man with the most elaborate equipment. As to the scheme of organization of, and teaching in, the laboratory departments there seems to be no disagreement.

2. *The Clinical Work.*—These essentials are (a) a modern hospital having for each clinical department a continuous service under the immediate charge of the heads of the department and his assistants; (b) a dispensary, or out-patient service similarly controlled, and (c) for each clinical department, clinical and research laboratories, class-rooms, operating rooms, etc. Comment has already been made in regard to competent clinical professors. These, as in the laboratory courses, constitute the most important factor.

For the university to build and maintain its own teaching hospital may not be the best step in all instances. It would doubtless be the best for all parties concerned if our great municipal hospitals could be conducted as scientific institutions in charge of the teachers and investigators of our strong university medical schools. This would not only enable those hospitals to fulfil a greater function in the development of thoroughly qualified physicians, but it would also be best for the patients, since they would have the benefit of the best methods of treatment under recognized experts. A campaign of education should be carried on to show our municipal authorities that the hospital will be best conducted in the interests of its patients and the community at large, if at the same time it is fulfilling its function as a great center of clinical teaching and research. The fame which is held by the great charity hospital of Vienna could likewise be obtained by the large municipal hospitals of New York, of Chicago and elsewhere. Here in Chicago the Cook County Hospital now has 2,000 charity patients, and with its new building to cost $800,000, to be erected in a short time, will have 3,000 beds. Think of the amount of good that could be accomplished if this great institution was developed along modern lines, in charge of trained teachers with proper facilities for teaching and research. Think how much better care and treatment the patients of the hospital would receive and the greater benefit it would be to the community at large through the better training given to its medical men. This could be done with a full recognition of the hospital's first and most important function—that of giving the patient the best medical attention—by providing that no patient should be used for teaching without his or her consent.

The splendid medical clinic of Friedrich Müller in Munich has been developed in a municipal hospital—and the same is true of most of the German clinics—made possible by an arrangement between the municipal authorities and the university authorities, by which the university, with the consent of the municipal authorities, appoints the head of the medical department to the position of attending physician to the hospital. No patient can be used for teaching if he objects. As a matter of fact, most of the patients are glad to be demonstrated and discussed, and less than 10 per cent. object. Although there are a few hospitals conducted by universities, most of the hospitals used as teaching hospitals in Great Britain and the Continent are municipal, government or semi-public institutions which are affiliated with medical departments. These affiliations are made and continued because the hospital and the medical school find it to their mutual advantage.

We should bring about the same state of affairs in this country, and, in fact, a start has already been made. At Cincinnati the large municipal hospital has been placed in charge of the clinical teachers of the University of Cincinnati; in St. Louis, the Washington University has made a close affiliation with the new Barnes Hospital; in Boston, Harvard has made an affiliation with the Peter Brigham and several other special hospitals; in New York, Columbia University and the Presbyterian Hospital have established similar relations; in Cleveland, Western Reserve University has formed a combination with the Lakeside Hospital; in Chicago, Rush Medical College has had for a number of years the medical control of the Presbyterian Hospital, and recently has made similar contracts and arrangements with the Children's Memorial Hospital, the Home for Destitute Crippled Children and the Hospital for Infectious Diseases.

The best plan is to make a definite contract between the university or medical school and the hospital giving the medical school the right to nominate the members of the attending staff, with the understanding also that, when a man severs his connection with the medical school, by virtue of that act he resigns from his hospital appointment. Further, the medical school should agree to provide for the scientific, medical and surgical care of the patients and control the clinical teaching, with the proviso that no patient who objects shall be used for clinical instruction.

We do not desire to belittle in any way the value of the university-conducted hospital. We feel, however, that in a broad conception of the best interests of the community and of our great charity and educational institutions, the charity hospital needs the services of the clinical teachers of the medical school, and that the medical school needs the hospital in order to carry on its clinical teaching and research work, and that the interests of the entire community are best subserved by such a combination.

In this combination between hospital and medical school the hospital should provide the means for conducting the hospital proper. The medical school should pay the salaries of the attending medical men and provide the necessary facilities for teaching and research. There should be that sort of division of labor, that sort of team work, which will make the combination of mutual benefit, and will result in both parties to the contract regarding each other with mutual admiration and respect.

THE TASK OF THE FUTURE

Therefore, in the reorganization of medical education in this country the medical profession must accomplish three great tasks: 1. It must urge the state licensing board to require that amount of medical training which is necessary before the medical student can safely begin independent practice, and this requirement should be put into effect within the next few years. This could be best accomplished by the concerted action of the state licensing boards and the Association of American Medical Colleges. If these two bodies would agree that in 1914 no college would be recognized as giving a satisfactory course which did not require one year of special training in physics, chemistry and biology, and that in 1916 all state boards would require a year's hospital experience in addition to the regular medical course, that would allow sufficient time for the schools and the students to prepare for these requirements.

2. The second great task is to secure through our universities and from other sources sufficient funds to place the medical schools on a full university basis, and at the same time to reorganize our medical departments on the general lines of the German universities so as to develop the trained teachers which are so much needed. In this reorganization we must secure state aid and private endowment and the support and cooperation of the university officers and trustees.

3. The third great task is to secure the proper affiliation between our great charity hospitals and our medical schools. By a campaign of education we must secure the cooperation of the governing bodies of these hospitals; we must convince them that the best interests of the patients and of the entire community can be best conserved by such a relationship; we must convince them of the great importance of developing the teaching and research functions of the hospital.

In these three tasks we must secure the active cooperation and support of three different classes of men: the state boards, the university authorities and the governing bodies of hospitals. The initiative in these great movements must come from the medical profession itself. We can accomplish these results by an active, aggressive campaign of education.

The Present Status of Medical Education in the United States

DR. N. P. COLWELL, secretary of the Council on Medical Education, Chicago: The third tour of inspection of all the medical colleges in the United States by the Council on Medical Education is now approaching completion, and on this inspection are based the following statements regarding the present status of medical education in this country: There has been a further reduction in the number of medical schools, so that instead of the abnormal oversupply we now have a smaller number of better equipped institutions. The total number of medical schools in this country now is 120.

Very encouraging is the fact that during the last year the amount of money given for medical schools, medical research and for the erection of teaching hospitals has passed all precedent. In fact, so often of late have we read of gifts of millions of dollars that mere thousands or hundreds of thousands have come to be quite commonplace. Incomplete returns from an effort to get exact information show that last year over $14,000,000 were given for medical education, medical research and for the building of teaching hospitals.

Six more colleges have entered on the requirement of a year or more devoted to physics, chemistry and biology, in addition to the four-year high school course, making a total of forty-seven which are now exacting the higher requirement. Twenty-nine of these are now requiring as a minimum for entrance two or more years of work in a college of liberal arts, in addition to a four-year high school education. There are nine state examining boards which have also adopted preliminary requirements in advance of a four-year high school education.

Of the seventy-three medical schools not requiring any college work for admission, only twenty-eight either voluntarily or by compulsion are adhering closely to the fourteen-unit high school course, while approximately forty-five colleges remain which openly declare for lower entrance standards. In many of the latter group anything in the way of a credential is acceptable, and there is no clear-cut, definite minimum preliminary standard. In fact, these colleges as a rule are interested chiefly in large enrolments and in students' fees. They "must obtain students or they cannot exist" is their excuse. These colleges have increased their enrolments of students by accepting those refused admission to more conscientious colleges which have responded to the prevalent demand for higher requirements. Meanwhile, there are several medical colleges which are still being conducted for profit, in that they are paying off debts or erecting new buildings—the property of the doctors who run the college—out of the income from students' fees!

In many instances the responsibility for entrance credentials has been shifted to the principal of some high school, in which case the college has usually been careful to select a principal who will not be too severe in his methods. In one instance a high school principal was discharged and another selected after the first had rejected about two out of every five of the applicants coming to him for examination. Another college, instead of complying with local arrangements for preliminary examinations, imported the superintendent of public instruction from a distant state to examine matriculants.

Of the 120 medical colleges in the United States, seventy-nine claim connection with liberal arts' colleges or universities, or have names indicating university connection or standards. Of this number, twenty-four do not receive any benefit in the way either of direct financial income or of educational improvement from their university connection. Three merely make use of the word "university" in their titles; three are named as "medical departments" of universities which do not exist or which have no liberal arts' departments, and one is a department of a so-called "university" in which the liberal arts' department is scarcely known. There are only thirty-three university medical departments which have a reasonably close, sympathetic and mutually advantageous connection with universities. On the other hand, there are forty-six medical schools having the word "university" in their titles or claiming to be medical departments of universities which are misrepresentations in so far as the university connection is more or less vague or entirely lacking.

MORE MERGERS NEEDED

There are several localities where two or more colleges are competing for clinical privileges in local hospitals, and as a consequence neither secures very abundant advantages. Particularly is this true in Memphis, Atlanta, Dallas, Richmond and Milwaukee. A merger of the institutions in these cities would not only give the one stronger institution the privileges now divided among the separate institutions, but also added privileges could doubtless be obtained, as was the case following the mergers at Indianapolis and at Cincinnati. Great benefits would result if further mergers could be brought about also in St. Louis, Chicago, Washington, Baltimore, Philadelphia, New York and Boston.

MEDICAL RESEARCH

A medical school does not fulfil its entire function as an educational institution or train its students in accordance with the latest and best methods of diagnosis and treatment, unless, through medical research, it also adds its quota to the world's knowledge of medical matters. Nevertheless, we have in this country to-day only thirty medical colleges where active and valuable research is being carried on. In about thirty others some little effort at research is being made by individuals, but the men are handicapped by lack of time, assistants or material, or the college is of too low a standard to receive any benefit from it. In at least fifty-six medical colleges no research work whatever is being carried on.

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STATE LICENSE REGULATIONS

The progress made in medical education during the last seven or eight years has shown in marked contrast the great need of improvement in state laws and regulations controlling the licensing of physicians. For example, there are still twelve states having no fixed standard of preliminary education and seventeen which require less than a four-year high school education. In fact, of the twenty-one states which are avowedly on the four-year high school basis, only six or possibly eight have methods of evaluating credentials which guarantee that every physician licensed actually has had the required training. The general failure to enforce preliminary standards is due chiefly to the unquestioning acceptance of the so-called "equivalent certificates." Meanwhile, in the twenty-one states referred to there are twelve or fourteen low-grade medical colleges which could not exist were it not for this failure on the part of state boards to evaluate carefully credentials of preliminary education.

SUPPORT OF THE LICENSING BOARDS

It is becoming more and more important that our state boards should be placed on a different financial basis than at present prevails. Now most boards have to depend entirely on the fees received from applicants. The fee system is faulty, in that efforts by the board to adopt higher standards or better methods of examination tend directly to reduce the number of candidates and to a corresponding degree the income of the board. It is about time, therefore, that for each board a state appropriation should be made, generous enough to provide not only for an able executive officer, but also for examinations that would be thorough, for such legal action as may be necessary for the enforcement of the practice act and for a careful system of records.

ONE STANDARD FOR ADMISSION TO THE PRACTICE OF MEDICINE

Another great problem in this country and one without parallel in any other civilized nation is due to the existence and recognition of medical sects. Pseudo-medical cults have secured a foothold through a skilful avoidance of the real issue. Each has argued for certain privileges as compared with privileges granted to other schools of medicine. The real issue, however, is that medical practice acts are not intended to protect this or that medical sect, but to protect the public against incompetence and fraud. It is, therefore, a question of education and training, and not one of this or that sect or method of treatment. Medical legislation should know no class and provide no special privilege, but should provide that only those who are competent, as measured by a certain definite routine in which all candidates are treated alike, should be permitted to treat human ailments. The practitioner of medicine, no matter what methods of treatment he may advocate, should have a sufficient knowledge of diseases and should have undergone a sufficiently thorough training in the fundamental branches of medicine to enable him to recognize the disease he is attempting to treat—that is he must be able to make a diagnosis; otherwise he should not be considered as qualified to practice medicine. To treat a patient without first obtaining a knowledge of the disorder is pure guess-work and unscientific. In many a case failure to give a required drug may cause the death of the patient.

Some Administrative Phases of Entrance Requirements

PROF. K. D. SWARTZEL, entrance examiner for the Ohio State Medical Board, Columbus, Ohio: The ideal educational requirement for admission to a medical college is that requirement which invariably secures in every matriculant: 1, general preparation; 2, special preparation, and 3, natural fitness. The examiner, on taking up the work of his office, finds the preliminary requirements fairly well defined and specified either by statute or board resolution, or by both. There should be a gradually increasing minimum requirement, fully keeping pace with the upward march of education in general, and of biologic, chemical and physical science in particular. I also believe that the minimum requirements for admission to a medical college should speedily become uniform throughout the states and ultimately throughout the civilized world. I shall not attempt to answer the question as to what shall be the content of the minimum requirement, but shall devote my time to the problem of its administration. This is indeed a difficult problem, and one on which there is a great diversity of method and I fear some looseness of practice.

By general preparation I mean that part of the preparation which does not have specifically in view the study of medicine. It includes all of the high school course and by far the greater part of the usual college course. By special preparation I mean the prerequisites to the study of medicine, such as the elements of chemistry, physics and biology, which should be general and of college grade. The study of the corresponding courses in high school should not be called special preparation. By natural fitness I mean, among other things, a love for the work of the physician or surgeon and the peculiar intellectual qualifications necessary to success in work. I shall dispose of these in reverse order, and thus finally arrive at the real business of this paper.

1. NATURAL FITNESS

This should be administered by the medical college. The medical college authorities should ruthlessly weed out all students who through their lack of interest show their lack of love for the work or a lack of the appropriate intellectual qualities. Some medical colleges are too tender hearted in this regard. Financial, sentimental or other considerations should be ignored, and if medical colleges do not do this effectively, medical board examinations should be set for all second-year medical students.

2. SPECIAL PREPARATION

This may be divided into two parts: (1) that part which is over and above the minimum requirement; (2) that part which is included in the minimum requirement. The entrance examiner should administer the requirement of special preparation in so far as it is a part of the minimum requirement. Any special requirement which is not a part of the minimum and which is imposed by a medical college should be administered by the college itself so long as it enforces that requirement strictly and as announced in its bulletins. If it does not do this the college as a whole should be considered under suspicion. There is nothing that will so quickly and completely disqualify an educational institution as failure to live up to its published announcements.

3. GENERAL PREPARATION

To pass on the general preparation and that part of the special preparation which is included in the minimum requirement is the business of the entrance examiner. No student should be permitted to see the inside of a medical college without having fully and satisfactorily completed the preliminary requirements, whatever they may be. The medical college officials should in every possible way hold up the hands of the examiner in this particular.

THE EXAMINER

1. Should be an expert in the business, with broad acquaintance and long experience in school and college affairs.
2. He should not be an official of a medical college or in any way under obligations to a medical college.
3. He should not owe his appointment to political considerations of any kind whatsoever.
4. His compensation should not be the fees charged the applicant or in any way dependent on the number of certificates issued.
5. He should be given entire freedom from dictation or interference from any source whatsoever.
6. He should administer reciprocity cases. This is necessary in the interest of uniformity and in the interest of justice to all concerned.

THE EXAMINER'S RECORDS

1. All credentials on which an entrance certificate has been issued should remain permanently in the files in the office of the examiner.
2. These files should be open, under proper restrictions, to the inspection of the world.

THE CREDENTIALS

1. The credentials should be official, i. e., they should be made out and signed by the appropriate present officer of the school from which they come.
2. The credentials should be sent directly from the school officials to the examiner and should not pass through the hands of the applicant.
3. The credentials should in general be on certificate blanks sent out by the examiner, so that there can be no doubt that they are to remain the property of the examiner's office.
4. The credentials should specify fully and in detail all the information desired or that may be desired.

THE BLANKS

1. A census blank to be filled out, dated and signed by the applicant. It should serve as a formal application for a certificate and should show name in full, date of birth, place of birth, permanent address, present mailing address and each school attended, with dates and time of attendance, date of graduation and degrees.

2. A college graduation blank to be sent together with a stamped return envelope directly to the registrar of any approved college indicated on the census blank and to be returned directly to the examiner. It should show the full name of the applicant, the name and location of the college, the degree, the year in which conferred, the signature of the registrar and the date of issue.

3. Other blanks similar in nature and purpose to the above two, but suited to the official certification of each other attainment that has been approved as invariably exceeding or equaling the minimum preliminary entrance requirement.

4. A blank high school certificate to be sent together with a stamped return envelope, directly to any principal of the high school, normal school or academy specified on the census blank. This high school certificate should show full name of applicant, name and location of school, time of attendance, with dates and full information concerning each subject studied, including text-book, subject-matter, number of weeks, number of recitations per week, net length of each recitation and scholarship attained. It should also certify to the fact of graduation or failure to graduate, and should be signed by the proper official. This blank should take the place of the original high school certificate which belongs to the applicant. A diploma has absolutely no place in this scheme.

5. The entrance certificate, by whatsoever name, should contain the full name of the successful candidate and show briefly the nature of the credentials on which the certificate was issued.

THE EVALUATION

1. Do not consider unofficial credentials.

2. Base no final estimate or promise on credentials not received directly from the school officials.

3. Schools not fully accredited should be required to furnish the fullest possible transcript of the student's record.

4. In the case of a school not fully accredited await the fullest possible authoritative information and spare no effort in obtaining it.

5. In the case of the schools of another state, refer all credentials, for rating and approval, to the most trusted authorities of that state. Do not regard their approval, however, as a sufficient cause for granting a certificate, but only as a necessary factor in determining the merits of the case. One may occasionally even demand that the applicant secure an entrance certificate in the state from which his credentials come, refusing to give them any consideration whatsoever until this is done. There are reasons why this should always be done between states having equal minimum requirements. The higher rating of credentials by one state than that accorded by the home state is demoralizing to standards and should be stopped.

6. In the case of credits by examinations set by the examiner of another state: do not ask any other state to accept your examinees and do not accept the examinees of any other state. I shall not enumerate the reasons for this, since they are fairly obvious. These reasons do not apply to the examinations set by so permanent and efficient a board as the New York Regents.

7. Remember that as a class reciprocity cases more than any others are open to suspicion as to good faith, character of credentials, moral character and natural fitness. It would greatly improve conditions were a definite period of practice a prerequisite to reciprocity.

8. With foreign credits go slowly and do not be overcredulous.

9. Do not accept as credentials general statements from any source. It is only in the writing of the applicant's obituary, should he die during the operation, that letters from friends of the applicant, politicians and state officials should be taken at full face value.

10. In all cases make haste slowly—do not be coerced or beguiled into haste. If the credentials are good to-day they will be good to-morrow. This precaution will save many a regret. Beware of the applicant who "must return home by the next train" and wants a certificate at once, or the applicant who writes "Please send my entrance certificate by return mail," and repeats the injunction in a postscript.

11. Profit by experience and the experience of others and strive to improve in technic and in ability to read between the lines.

12. Do not use a variable or vacillating standard in evaluation or one with too great flexibility.

13. Remember that "The wise man is not he who never makes a mistake, but he who never makes the same mistake twice," and I might add he who makes but few mistakes all told

THE DANGER POINTS

1. School officials may prove to be unreliable in many ways. Of these carelessness is the most common. I have seen three copies of the record of one applicant, no one item in which was the same on all three certificates. I have now in my possession two certificates signed by the same high school superintendent, purporting to be a transcript of the record of the same boy. One shows credit for not over two full years of work and the other for over six full years! Connivance with the student does occur, and certificates or records are sometimes slightly altered at the request of the student. Absolute dishonesty is not common, but I have met one such case. Misrepresentation of the standing of a school through local pride or personal interest is more common. The rating given a school by its officials is not to be taken too seriously.

2. The applicant may and occasionally does alter or add to a certificate. He may and occasionally does even forge a certificate. Neither of these things can occur when credentials come directly from the school officials at the request of the examiner. I have been convinced of the necessity of this precaution by the considerable number of forged and altered credentials this practice has discovered.

THE ESSENTIALS

1. A census blank.
2. Official credentials.
3. Credentials directly from the school official.
4. Accurate information concerning school.
5. Permanent filing of:
   (a) Census blank.
   (b) Official credentials.
6. Brief statement on entrance certificate.

SOME RECOMMENDATIONS

1. Conferences between state examiners.
2. Steps looking toward uniformity of practice throughout the states.
3. Steps looking toward uniformity in minimum requirements throughout the states.
4. A central office and officer to whom final appeals may be made for information and advice; this officer to inspect the records of each state entrance examiner, on request or at stated intervals, thus insuring permanent, complete and business-like records.

(To be continued)

Medical Education and State Boards of Registration

COMING EXAMINATIONS

CONNECTICUT: Regular, City Hall, New Haven, March 12-15. Sec., Dr. Charles A. Tuttle; Homeopathic, Grace Hospital, New Haven, March 12. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave.; Eclectic, Hotel Grace, New Haven, March 12. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

MAINE: City Council Rooms, Portland, March 12-13. Sec., Dr. Frank W. Searle, 776 Congress Street.

MASSACHUSETTS: State House, Boston, March 12-14. Sec., Dr. Edwin B. Harvey, Room 159, State House.

WYOMING: Riverton, March 13-15. Sec., Dr. Albert B. Tonkin.

Resigns Deanship of Harvard Medical School

Dr. Henry A. Christian has resigned as dean of Harvard Medical School, to take effect Sept. 1, 1912, and as physician-in-chief of the Carney Hospital, to take effect June 1, 1912. He will retain his position as Hersey professor of the theory and practice of physic in Harvard University. These changes were made by Dr. Christian in order that he might accept the position as physician-in-chief of the Peter Bent Brigham Hospital which will be opened about Nov. 1, 1912. Dr. Christian has been granted a leave of absence beginning April 30, to go abroad to study foreign clinics and methods of work.

Kentucky December Report

Dr. J. N. McCormack, secretary of the Kentucky State Board of Health, reports the written examination held at Louisville, December 19-21, 1911. The number of subjects examined in was 10; percentage required to pass, 70 and not less than 60 in any one branch. The total number of candi-

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dates examined was 31, of whom 21 passed, including 2 osteopaths, and 10 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago College of Medicine and Surgery	(1909)	83
Kentucky School of Medicine	(1907)	92
University of Louisville (1910) 74, 76, 78; (1911) 73, 74, 75, 77, 78, 79, 81		
Louisville National Medical College.. (1910) 72;	(1911)	70
Hospital College of Medicine, Louisville	(1902)	75
Johns Hopkins University	(1909)	87
Harvard Medical School	(1909)	87
Woman's Medical College of Pennsylvania	(1909)	86
Meharry Medical College	(1909)	78
FAILED		
University of Louisville	(1909) 55, 60; (1911)	63, 64
Louisville National Medical College	(1911)	51, 65
Louisville and Hospital Medical College	(1908)	67
Kentucky University	(1905)	67
American Eclectic Medical College, Cincinnati	(1894)	26
Tennessee Medical College	(1909)	58

Book Notices

THE PRACTICE OF MEDICINE. By Frederick Taylor, M.D., F.R.C.P., Consulting Physician to Guy's Hospital. Ninth Edition. Cloth. Price, $6 net. Pp. 1121, with illustrations. New York: Macmillan Co., 1911.

Many additions have been made to this book and many topics are described for the first time in this edition, such as meralgia paresthetica, pneumococcal meningitis, myotonia atrophica, amyotonia congenita, enterospasm, Hirschsprung's disease, intermittent claudication, congenital family cholemia, peritoneal adhesions, lymphatism, bacilluria and pneumaturia.

Both pellagra and beriberi are included among the infections. Reference is made to the effect of certain preparations of rice as a cause of beriberi, but the recent experiments and latest information in regard to it are not fully set forth or estimated at their full value. The occurrence of pellagra in this country is not mentioned.

Under anterior poliomyelitis the scantest reference is made to the recent investigations by Flexner into the nature of this disease and its mode of dissemination.

One must remember, however, that it takes much time to revise a book like this and naturally some of the most recent additions to our knowledge must be left out.

HANDBOOK OF MEDICAL TREATMENT. A Guide to Therapeutics for Students and Practitioners, with an Appendix on Diet. By James Burnet, M.A., M.D., M.R.C.P., Fellow of the Royal Society of Medicine. Cloth. Price, $1.50 net. Pp. 168. New York: William Wood & Co., 1911.

An unusual and a good feature in a book presumably devoted to medical treatment is the space given to the subject of diet. It is to be regretted, however, that the author has not devoted more time to the consideration of diet from the scientific point of view, rather than to permit himself to recommend so many proprietary meat juices, foods, etc. The drugs that are mentioned, however, are mainly pharmacopeial (British), fewer preparations being recommended than is usual by a British author. Aside from the criticism as to proprietary foods, we find the book is one to be commended as a helpful guide in the treatment of non-surgical diseases.

DIE REGISTRIERUNG DES HERZCHALLES. Graphische Studien von Dr. Heinrich Gerhartz, Assistent der Kgl. Universitäts-Poliklinik für innere Kranke zu Berlin. Paper. Price, 8 marks. Pp. 158, with 195 illustrations. Berlin: Julius Springer, 1911.

This monograph is an authoritative discussion of the graphic registration of the heart tones. A review of the efforts of others in this line is followed by an account of the author's own methods. The physical principles involved are fully considered and the various instruments described, with help from diagram and illustration. Then follows a discussion of the graphic representation of the normal heart tones and later the endocardial murmurs, those of mitral regurgitation and mitral stenosis being dwelt on with especial detail. The possible errors in technic and in the interpretation of the tracings are pointed out. A very complete bibliography, and excellent work by the printer and illustrator make the brochure an invaluable one to the student of this special feature of cardiac physiology and pathology.

Medical Economics

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

Seventh Month—Second Weekly Meeting

CHANGES IN UTERUS AND APPENDAGES DURING PREGNANCY

UTERUS: Weight, capacity, diameters, form and consistence, situation. Cervix; direction, softening, effacement. Muscular wall; number and size of fibers, elastic tissue. Mucous membranes, decidua. Arteries, veins, lymphatics.

LIGAMENTS.

OVARIES: Position, cessation of ovulation, corpus luteum.

TUBES: Change in position.

VAGINA: Color, blood-vessels, secretion. Pelvic floor. Vulva. Pelvic articulations.

CHANGES IN OTHER ORGANS AND STRUCTURES

ABDOMINAL WALLS: Distention, striæ, linea alba.

BREASTS: Enlargement, Montgomery glands, secretion, roseola.

HEART:[1] Displacement, size, pulse-rate. Blood; amount, leukocytes, alkalinity.

THYROID: Size, changes in nephritis, in albuminuria.

KIDNEY: Urine, quantity, toxicity, salts and other elements. Albuminuria; frequency in pregnancy, labor and puerperium. Kidney of pregnancy, differs from nephritis.

Bladder. Stomach and bowels. Mental and nervous changes.

DIAGNOSIS OF PREGNANCY[2]

POSITIVE SIGNS: 1. Fetal heart-beat; occurrence, rate, location. Differentiate from funic souffle, from uterine souffle. 2. Movements of fetus; active and passive. 3. Outlines of fetus by palpation.

PROBABLE SIGNS: 1. Abdominal enlargement. 2. Changes in shape and consistence of uterus. 3. Changes in cervix. 4. Intermittent uterine contraction.

PRESUMPTIVE SIGNS AND SYMPTOMS: 1. Cessation of menses. 2. Changes in breasts. 3. Nausea and vomiting. 4. Quickening. 5. Discoloration of vaginal and vulvar mucous membranes. 6. Pigmentation of skin and striæ. 7. Urinary disturbances. 8. Abnormal appetite, emotional changes.

Medicolegal

Sufficient Proof by Physician of Claim Against Estate

(In re Runions (N. Y.), 130 N. Y. S. 1039)

The Surrogate's Court, St. Lawrence County, New York, allows against an estate of a decedent a physician's claim for $243.50 for services rendered and medicines furnished to the decedent, which claim the administrator of the estate entirely rejected. The court says that the rendering of the services was abundantly proved by the claimant's book of accounts, if such book was properly received in evidence. The book was produced by the claimant and identified by him as his book of accounts. He testified that he made the entries in it, and that he so made them at the time the transactions referred to occurred, and that he kept no clerk. He then proved by others that some of the services charged for were rendered, that some of the medicines charged for were delivered, that the amounts charged were reasonable, and that he kept correct books, the latter fact being shown by the testimony of several persons who had settled with him from the book during the period covered by the account in question, that their accounts on the books were shown to them, and that they found them correct. The main objection urged by counsel for the administrator was that the book was incompetent as evidence against the estate of the decedent under the statute, citing a case in which the only evidence that the claimant kept correct books was his own testimony, given under objection and exception—that is, a case in which the plaintiff merely produced his own record of his dealings with the decedent and then swore that the record was correct.

1. Progressive Medicine, September, 1905.
2. Johnson: THE JOURNAL A. M. A., Feb. 20, 1904, p. 499.

But in the present case the correctness of the claimant's book of account was proved by the testimony of third persons. The book itself was not then incompetent evidence merely by reason of the fact that the entries in it were made by the claimant himself. Any other rule would render it impossible in the majority of cases to establish a claim against an estate, where the claim consists of many items of goods sold and services rendered. Because no good reason was shown for the entire rejection of this claim by the administrator, and, while each step in the proof of the claim was resisted by him, no evidence whatever was offered to show that the bill was not in every respect correct and reasonable, the court thinks that an allowance should be made to the claimant of $25 costs in addition to his disbursements.

Death from Dilatation of Heart After Exercise

(Hastings vs. Travelers' Insurance Co. (U. S.), 190 Fed. R. 258)

The United States Circuit Court, in Washington, holds that where a man 54 years of age and of normal stature lifted himself up and down two or three times in a chair, possibly two or three times in one chair and two or three times in another chair very soon afterwards, his death brought about in that way was not caused by "external, violent and accidental means," within the terms of an accident insurance policy. The court says that a post-mortem examination was held the following day by a capable physician, who discovered that prior to his death the insured had an enlarged heart and hardened valves; but that the immediate cause of his death was his physical exertion, which produced a dilatation of the heart.

This case should have been submitted to the jury if there had been any room to find that there was any miscalculation, anything unforeseen, or unintended in the events leading up to the death of the insured. In other words, if there had been anything in his act which was unforeseen, unexpected or miscalculated, then it would have been a question for the jury as to whether that accidental element caused the death. But it was admitted that the act of the insured in lifting himself by his hands and letting himself down was precisely the movement that he was intending to perform and desirous of performing. There was no slipping of the hands or of the body or of the chair. So far from there being any element of chance or miscalculation or the unexpected, the movement was accomplished precisely as contemplated. The only mistake the insured made was in miscalculating the strength of his heart. There was no possible liability.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below

Texas State Journal of Medicine, Fort Worth

** February, VII, No. 10, pp. 265-292*

1 *Prophylactic Value of Instruction of Children in Elements of Physiology of Sex. C. A. Pfender, Washington, D. C.
2 *Education in its Relation to Public Health. F. Paschal, San Antonio.
3 Diagnosis and Treatment of Diphtheria. J. C. Anderson, Plainview.

1. **Instruction of Children in Physiology of Sex.**—It is Pfender's belief that the instruction of the coming generations in sexual matters during childhood will prove the only effective means of even partially coping with the question of the prevention of the breeding of further physical and mental degenerates. He says that the time has come when we can no longer afford to take a negative stand on this issue. We must, he says, acknowledge, willingly or reluctantly, as the case may be, that the greatest problems of the day are the child problems. The past has had entirely too much advocation of woman's rights and far too little thought for the child. Sanitarians, social hygienists, pedagogues and leaders among the medical profession have of late, however, manifested an intense interest in the betterment of existing conditions of society, and the general practitioner and the family physician in particular, need to be fully aroused to their duty of directing and supervising the methods of prevention suggested for their relief.

As yet the number of reformers is very small, for they comprise the proverbial "drop in the bucket" among the vast mass of humanity still unaware of such movement and whose cooperation is necessary if these efforts are to be crowned with success. Child education should begin in the home. It is only through the intelligent education of the present generation that the future fathers and mothers will obtain the training that will enable them to correctly transmit needed knowledge to their children. Moral education, of course, should and does largely precede all other forms of instruction. The earliest impressions of childhood are shaped by environment, either good or evil, and it requires no superintelligent mind to grasp the importance of insuring the proper direction of such impressions during the formative stage of mental development.

2. **Education and Public Health.**—Paschal regards it as eminently proper for every state medical association to have a bureau on education from which well written articles could be contributed to the secular press. Unfortunately, he says, our profession is in some respects a peculiar one. It is, to a large extent, a jealous profession and many believe that a colleague who is prominent in public affairs is likely so for selfish purposes; and if an article, though it be of vast importance in an educational way, appears in the secular press with the name of the author attached, the great good it may do is overlooked and the author is severely criticized and censured. It is true, that adverse criticism might be, under certain conditions, right; but on the other hand, where a physician is honest and has attained the respect and confidence of his fellow practitioners and the community at large, there should be no feeling against him; on the contrary, he should be recommended and encouraged to continue his good work. Organized as the profession is, with a medical society in almost every county in the state, and in almost every county in the United States, there should be no difficulty in reaching and teaching the humblest on the causes and prevention of disease. This can be done by each county society selecting some of its best men to address meetings composed of the class not likely to be reached through the secular press. Meetings could be held in different quarters at different times and while it is not to be expected that the people would turn out *en masse*, still, by dividing towns and districts into small precincts and keeping at it, there would be little difficulty in ultimately getting their attention; then by lectures devoid of all technicalities and in words that could be easily understood by all, the necessary information could easily be imparted.

Bulletin of Manila Medical Society

December, III, No. 12, pp. 197-212

4 Case of Patent Ductus Arteriosus Botalli. A. G. Sison, Manila.

California State Journal of Medicine, San Francisco

February, X, No. 2, pp. 47-84

5 Medical Organizations and Conservation of Public Health. W. J. Barlow, Los Angeles.
6 Automobile Fractures. W. H. Winterberg, San Francisco.
7 *Lipoids of Normal, Nephritic and Diabetic Serum; Preliminary Report. C. Quinan, San Francisco.
8 Interscapular Thoracic Amputation. H. A. L. Ryfkogel, San Francisco.
9 Responsibility of General Practitioner to Child with Speech Defect. H. Horn, San Francisco.

7. **Lipoids of Normal Nephritic and Diabetic Serum.**—The main objects sought by Quinan are to outline what is believed to be a new method for the quantitative determination of these obscure substances, and to submit the data obtained in the study of three different groups of cases, comprising in all thirty individuals. He found that in chronic nephritis the group of globulins thrown down by carbon dioxid is markedly increased. This globulin always contains lipoids and yields them to organic solvents. In normal serum the lipoid value ranges from 0.85 to 1.15 per cent. In chronic parenchymatous nephritis the total lipoids are increased and the serum may contain 2.00 per cent. For a detailed description of the method the original should be consulted.

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Canadian Medical Association Journal, Toronto

January, II, No. 1, pp. 1-88

10 Undergraduate Training and Requirements for License to Practice. A. McPhedran, Toronto.
11 Bacillus Lepra in Nasal Mucous Membrane. F. A. de Verteuil and F. L. de Verteuil.
12 Pseudomuscular Hypertrophy. M. G. Burris, Halifax.
13 Observations from Boer-Land. R. E. McConnell, Transvaal.
14 Semmelweiss and Holmes. J. E. MacDermot.

Journal of Biological Chemistry, Baltimore

February, XI, No. 1, pp. 1-95

15 Studies in Nutrition: Utilization of Proteins of Cotton Seed. L. B. Mendel and M. S. Fine, New Haven, Conn.
16 Idem: Utilization of Proteins of Extractive-Free Meat Powder and Origin of Fecal Nitrogen. L. B. Mendel and M. S. Fine, New Haven, Conn.
17 Chemistry of Dog's Spleen. H. J. Corper, Chicago.
18 Errors in Quantitative Determination of Cholesterol by Ritter's Method; Influence of Autolysis on Cholesterol. H. J. Corper, Chicago.
19 Hemagglutinating and Precipitating Properties of Bean. E. C. Schneider, Colorado Springs, Colo.
20 Recovery of Alcohol from Animal Tissues. P. J. Hanzlig, Cleveland.
21 Researches on Purins: 2-Oxypurin and 2-Oxy-8-Methylpurin. C. O. Jones.
22 Researches on Purins: 2-Oxyl-1-Methylpurin. C. O. Jones.
23 *Use of Phosphotungstic Acid as Clarifying Agent in Urine Analysis. C. E. May, Bloomington, Ind.
24 *Purin-Hexose Compound. J. A. Mandel and E. K. Dunham, New York.
25 Protein Metabolism from Standpoint of Blood and Tissue Analysis. O. Folin and W. Denis, Boston.

23. Phosphotungstic Acid as Clarifying Agent.—In May's method a given amount (50 c.c.) of urine was acidified with a few drops of concentrated hydrochloric acid and placed in a 150 c.c. graduated flask. At room temperature, the urine was treated with 50 c.c. of a 2 per cent. phosphotungstic acid solution. The mixture was diluted to the mark and filtered. Of the filtrate, 100 c.c. were measured into a 200 c.c. graduated flask, made neutral or barely alkaline with barium hydroxid solution, diluted to the mark, filtered and used directly. No correction is made for the volume occupied by the phosphotungstate-protein precipitate and the barium phosphotungstate precipitate. The method has usually been applied to urines containing a small amount of protein. Large bulky precipitates were not encountered. Usually 50 c.c. of the reagent precipitated the protein, uric acid and creatinin completely, and the small excess of reagent did not yield a voluminous precipitate with barium hydroxid solution. This method was used on the defecation of urines containing about 8 per cent. of glucose and a good trace of protein. Using the polariscope on the undefecated urine, not eliminating the protein on account of the small amount present, he got only fairly sharp readings, even by using short columns of the liquid for polarization. By the method as outlined he got sharp readings and also higher readings owing to the removal of the lævo-rotating protein that cut down the dextro-rotation of the mixture. The small amount of protein had a very appreciable effect on the actual percentage of sugar found and on the removal of the protein, the glucose reading reached more nearly what corresponded to the actual glucose content of the urine.

24. Purin-Hexose Compound.—From an extract of a commercial preparation of yeast, a crystallin substance was obtained by the authors which is a compound of adenin and a hexose. The amount of material isolated has not been sufficient for a complete identification of the sugar.

Journal-Lancet, Minneapolis, Minn.

February 1, XXXII, No. 3, pp. 57-84

26 Deformities of Neck. R. H. Sayre, New York.
27 Some Lessons from Life and Labors of Helmholtz. C. A. Wood, Chicago.
28 Some Mistakes Made in Practice of Obstetrics. F. E. Leavitt, St. Paul.

West Virginia Medical Journal, Wheeling

February, VI, No. 8, pp. 257-290

29 Treatment of Tuberculosis. J. N. Alley, Fort Lapwai, Ida.
30 Popular Delusions as Affecting Physician. G. D. Lind, Greenwood.
31 Cure of Enlarged Prostate and Urethral Stricture by Electrotherapy. R. H. Pepper, Huntington.
32 Tonsillectomy a Hospital Operation. L. C. Covington, Charleston.
33 Atropin in Ocular Diseases. H. R. Johnson, Fairmont.
34 *Case of Ruptured Liver. C. E. Grimm, Elizabeth, N. J.
35 Treatment of Croupous Pneumonia. G. W. Norris, Philadelphia

34. Ruptured Liver.—Grimm's patient, a carpenter, was struck with a heavy board in the upper abdomen. Severe pain and marked tenderness were experienced in the right upper quadrant of the abdomen. Dyspnea, thirst and faintness were also prominent subjective symptoms. He did not lose consciousness, however. He arrived at the hospital at 3:50 p. m. The face was pale and pinched and the skin cold and clammy. His pulse was 120, but of good volume. Respiration 28 and temperature 99.8. On inspection, the breathing was found to be of the costal type. No evidence of skin injury was visible. Marked tenderness and rigidity were elicited in the right upper quadrant of the abdomen. Dulness in the flanks was obtainable on percussion. A diagnosis of intra-abdominal hemorrhage, probably due to ruptured liver, was made, and the patient was hurriedly prepared for laparotomy. A tear 3 inches long and 2 inches deep was observed in the anterior portion of the right lobe of the liver. The greater part of the hemorrhage was apparently coming from the rent. The tear was closed with four fairly deep chromic catgut sutures. A small tear in the fissure for the gallbladder was packed tightly with plain gauze. A tear 3 inches long and 1 inch deep on the under surface of the right lobe was closed with three chromic catgut sutures. The other abdominal viscera were then examined and found to be intact. The patient made an uneventful recovery, getting out of bed on the twenty-eighth day and was discharged cured on the forty-fourth day.

Journal of Abnormal Psychology, Boston

February, VI, No. 6, pp. 401-475

36 Delusion Formation. D. Fraser, Glasgow.
37 Case of So-Called Alcoholic Amnesia Following Prolonged Stupor, Terminating in Recovery After Reeducation. A. C. Buckley, Philadelphia.
38 Case of Hallucinosis Induced by Repression. C. P. Oberndorf, New York.
39 Possibilities of Modified Psycho-Analysis. E. W. Taylor, Boston.

Denver Medical Times and Utah Medical Journal, Denver

February, XXXI, No. 8, pp. 301-348

40 *Fleming's Skin Stitch. H. G. Wetherill, Denver.
41 Case of Spontaneous Umbilical Hemorrhage in 2 Weeks' Old Baby. H. C. Dodge, Steamboat Springs, Colo.
42 Mastoid Infection of Lateral Sinus. G. W. Miel, Denver.
43 New Instrument to Aid in Bone-Plating. B. O. Adams, Pueblo, Colo.
44 Value of Omentum. F. C. Buchtel, Denver.
45 Selection of Surgical Needles. C. E. Tennant, Denver.
46 New Fashion of Surgeon, from Family Physician's Standpoint. L. E. Rupert, Florence, Colo.
47 Pott's Fracture. L. W. Ely, Denver.
48 Why Use the Roentgen Ray? G. H. Stover, Denver.

40. Fleming's Skin Stitch.—This stitch, Wetherill says, aims to accomplish with ordinary suture material what is so well done with Michell's and other metal skin clips; i. e., approximate raw surface to raw surface, avoid infolding of the epithelial margins and allow the epithelial lines to meet on an exact plane when the stitches are removed. This is accomplished as follows: The cut edges of the skin are evenly brought together by stretching the wound with small tenaculum forceps, catching it at either end. The stitches, preferably of silk worm gut, are put in from a half to three-quarters of an inch from the edge of the incision and from three-quarters to one and a quarter inches apart, depending on the tension necessary to bring the edges together. Then the particular feature of Dr. Fleming's stitch is employed. As each stitch is picked up to be tied, the skin margins are caught with mouse-toothed forceps and carefully and evenly approximated raw edge to raw edge, precisely as is done in applying Michell's clips. As the first knot on the stitch is tightened, the forceps depress the skin margins in such a way as to leave a longitudinal ridge underneath the stitches. All of the stitches are tied in this manner, the ridge being thus prolonged from one end of the incision to the other. The stitches may be removed from the seventh to the tenth day and after the redness and slight swelling have disappeared, the wound is found to be smooth and sightly and, unless the patient happens to be one of those unfortunates predisposed to keloid or hypertrophic growth in the scar tissue, the ultimate result will be quite satisfactory.

A nice apposition of the edges of the incision, such as is accomplished by Fleming's skin stitch, helps to prevent it.

Buffalo Medical Journal

February, LXVII, No. 7, pp. 365-420

49 Normal and Pathologic Physiology of Hypophysis. J. L. Miller, Chicago.
50 Timing of Heart Murmurs. E. H. Long, Buffalo.

Mississippi Medical Monthly, Vicksburg

February, XVI, No. 10, pp. 189-208

51 Pus Conditions in Abdomen. A. G. Payne, Greenville.
52 Legal Medicine. H. O. Leonard, Doddsville.
53 Hemorrhagic Disease of New Born. S. C. Spencer, Shannon.

American Journal of Surgery, New York

February, XXVI, No. 2, pp. 65-96

54 Abdominal Operations Under Local Anesthesia. A. E. Hertzler, Kansas City, Mo.
55 Local Anesthesia in Traumatic Surgery. S. J. Young, Valparaiso, Ind.
56 Surgical Essentials. F. E. Neef, New York.
57 Infertilitas in Vinculum Matrimonii. Q. W. Hunter, Louisville, Ky.
58 *Method to Facilitate Palpation of Upper Abdomen. H. Neuhof, New York.
59 Uses of Aluminum Acetate in Local Inflammations. H. H. Stansbury, Baltimore.
60 Case of Traumatic Aneurism of Brachial Artery, with Occlusion of Distal End; Successful Endoaneurismorrhaphy (Matas). A. Eustis, New Orleans.

58. **Method to Facilitate Palpation of Upper Abdomen.**—The method employed in the Admitting Department of Mount Sinai Hospital for the past year is described by Neuhof as follows: An ordinary flat rubber bandage (the Martin bandage) is attached to the examining table on one side of the patient and is drawn snugly across the patient's abdomen immediately above the iliac crests. The bandage is then attached to (or slipped through the slit generally present on) the table on the other side of the patient. The bandage is now carried backwards and forwards across the abdomen two or three times, care being taken that each layer is superimposed on the previous layer, is unwrinkled, and fits snugly. A rather deep groove should be made in the abdominal wall by the elastic bandage. If the bandage induces discomfort or pain it has been too firmly applied and should be loosened. The method is contraindicated in the presence of any acute intra-abdominal condition. Another way in which the elastic bandage has been employed is in circular turns about the waist immediately above the iliac bones. If the patient remains in the recumbent posture for about five minutes with the bandage applied, the upper recti will in most instances be found sufficiently relaxed for satisfactory epigastric palpation. Examination is generally made with the bandage in position, but if it interferes, the bandage may be removed since the upper abdominal wall remains relaxed for several minutes after its removal. Neuhof has found that epigastric tumors are then more superficially situated than at examinations made previous to the application of the band. The reason for this seems to be that the band divides the abdomen in half and that inspiration pushes the masses downward and forward instead of directly downward as in the unconstricted abdomen.

Maryland Medical Journal, Baltimore

February, LV, No. 2, pp. 27-52

61 Shock. A. McGlannan, Baltimore.
62 Deafness; Its Cause and Newest Treatment. H. E. Cook, New York.

New Orleans Medical and Surgical Journal

February, LXIV, No. 8, pp. 569-638

63 *Case of Fecal Obstruction of Small Intestine. W. D. Roussel and E. Williams, Patterson, La.
64 Tuberculosis in Childhood from Clinical Standpoint. S. G. Wilson, New Orleans.
65 Case of Idiopathic Purpura Hemorrhagica. W. Tusson, New Orleans.
66 *New Method of Enterectomy. O. W. Bethea, New Orleans.

63. **Fecal Obstruction.**—In this case the authors removed an enterolith from the small bowel, 1½ inches in diameter and 2 inches long. One of its extremities was irregularly rounded in shape, the other being smooth and flattened, with sharp edges. This flattened extremity was directed toward the distal end of the bowel, and led to the belief that another stone had been present on that side, but search for this was negative, as far as the cecum. It was thought possible that the stone might have been formed in the gall-bladder, since, on quick examination, it resembled a large gall-stone in many points, especially in its flattened end; but the gall-bladder was found normal. The wound in the bowel was sutured and the gut returned to the cavity, which was drained. The patient died twenty-four hours after the operation. Autopsy showed the abdominal cavity clean; there was no other obstruction at any point. The kidneys presented the picture of an acute glomerulonephritis. The point at which the stone lay was 4½ feet from the ileocecal junction. A small stercoral ulcer was found 6 inches from the incision in the gut, at which place the mass had evidently been lodged firmly for some time before moving on.

66. **New Method of Enterectomy.**—In Bethea's method excision of the part to be removed is effected in the usual manner. An additional section from ½ inch to 1 inch in length is incised. This additional section is suspended on the handle of suitable instruments and a longitudinal incision made through the peritoneum at a point opposite the mesentery. The peritoneum is grasped with thumb forceps at the margins of the incision and the peritoneum with some subperitoneal tissue peeled down and the musculo-mucous tube lifted out. The ends of the intestine are united with continuous suture through all coats. One peritoneal flap is raised to cover one side of the wound and the margin stitched with continuous suture. The other flap is then raised and sutured in the same manner, but is made slightly to overlap the first flap, where the two meet in the median line.

Journal of Iowa State Medical Society, Clinton

February 15, I, No. 8, pp. 397-460

67 Necrosis of Maxillæ. L. W. Dean, Iowa City, Iowa.
68 Modern Treatment of Aneurysm. L. Schooler, Des Moines, Iowa.
69 Division of Responsibility in Referred Cases. J. W. Kime, Fort Dodge, Iowa.
70 Old and New in Medicine. R. L. Cleaves, Cherokee, Iowa.
71 Hydrotherapy in Treatment of Mental and Nervous Diseases. C. F. Applegate, Mount Pleasant, Iowa.
72 Value of Psychotherapy. E. E. Harris, Grinnell, Iowa.
73 Trachomateus Ulcers of Cornea. F. W. Dean, Council Bluffs, Iowa.
74 Obstetric Hygiene. C. W. Baker, Stanwood, Iowa.
75 Fractures of Patella. A. P. Donohoe, Davenport, Iowa.

American Journal of Diseases of Children, Chicago

February, III, No. 2, pp. 69-131

76 *Polygraph as Aid in Diagnosis of Cardiac Conditions in Children. G. R. Pisek and T. H. Coffen, New York.
77 *Physical Evidence of Thymus. C. Basch and A. Rohn, Prague.
78 *Study of Pyrogenic Action of Lactose. F. W. Schultz, Minneapolis.
79 Management of Squint in Children. C. W. Le Fever, Philadelphia.

76. **Diagnosis of Cardiac Conditions.**—The instrument used by Pisek and Coffen was their modification of the Erlanger sphygmograph with Hirschfelder attachment. This apparatus allows a simultaneous tracing to be made (1) of the pulse—known as the sphygmogram; (2) of the heart—cardiogram; (3) of the venous pulse—phlebogram. These three tracings, when studied in relation to each other, become much more valuable than when taken alone, even with the finest instrument. Tracings satisfactory for diagnosis were obtained. The polygraph offers a means of accurate diagnosis which is not afforded by ordinary methods of examination, and should be used in addition to these—it will not replace them. The information obtained from polygraphic tracings is of value for prognosis and treatment. Digitalis heart-block should be suspected where the pulse becomes irregular under the use of this drug. Respiratory arhythmia was found in the series of cases studied with surprising frequency. This is said to be physiologic, but the authors fear that it may frequently be misleading, and that the physician may suspect serious cardiac weakness. This was illustrated in cases of scarlet fever, diphtheria and measles studied by them. The "irregular hearts" were shown to have marked respiratory arhythmia. They have yet to find extra systoles or auricular fibrillation in children. The use of the polygraph will not stultify physi-

cal findings; on the contrary, more careful examinations will be made, for its use enhances their value and interprets observations which have thus far been unexplained.

77. **Physical Evidence of Thymus.**—In order to determine whether it is possible to obtain a clear shadow of the thymus in a Roentgen photograph, Basch and Rohn prepared photographs of a young dog having a relatively large thymus, before and after extirpation, by means of instantaneous and time exposures, and a lead screen. In order to mark the exact location of the extirpation they sewed up the sternal cut with silver thread; nevertheless they were unable to find in the photographs any marks which could be definitely declared to be thymus shadows. Next they took instantaneous pictures of an anatomic preparation of the sternum of a young dog, one exposure with thymus attached and another of the sternum alone; they could neither find any sign of a thymus shadow, nor see that the clear picture of the sternum was at all obscured by the underlying thymus. Also, the thoracic photograph of two young children of the ages of 2 and 6 months gave negative results in respect to thymus shadows. The taking of further pictures induced them to regard the question of the clearness of the thymus shadow as still unsettled, and to speak very reservedly of their ability to give an instantaneous and unmistakable conclusion of the size of the thymus.

The authors then resorted to auscultation-percussion. In order to make it possible for one person to do this auscultation and percussion, and to make the technic as exact and uniform as possible, Basch constructed an instrument which duplicates the mechanism of the percussing finger but is lighter and can be easily used with one hand. It touches only about a quarter of a centimeter of surface, and can easily be moved across these small areas laterally as well as longitudinally. The half shut-off stethoscope is held over the midsternum with the other hand, and the percussion note heard by the one who makes it. The use of this new instrument shows that it is possible to obtain a more definite and exact outline of the anterior thoracic organs than by earlier methods such as the finger. In contrast to the triangular area of dulness over the thymus pictured by Blumenreich, the authors found, by direct and by auscultatory percussion, an area somewhat larger than that which has been before demonstrated.

Besides this, they have used a method to outline the lateral areas of the thymus, described by Bianchi and A. Smith, the so-called friction method. By this method they examined in the out-patient clinic of the hospital a number of children aged 6 to 18 months and later up to 3 and 4 years. Beyond the fifth year no sure thymus dulness could be demonstrated. They conclude that the greatest anatomic development and the most important biologic epoch could be looked for between the second six months and the third year of life. Systematic examination of 140 cases show that the size of the thymus varies according to the age of the child and its nutritive condition, and to certain pathologic conditions. Normally the area of thymus dulness in children shows a rhomboid form, which extends from the jugular down to the second or third rib, and whose lateral borders are confined to the sternal and parasternal lines. By exact drawings of the clinical findings on a diagram of the anterior thorax they can be correctly compared with the autopsy results.

78. **Pyrogenic Action of Lactose.**—The results of Schultz's experiments show that lactose if given intravenously, subcutaneously or orally, possesses no distinct pyrogenic effect no matter in what concentration or amount it is given. It does possess a definite though not pronounced influence on the temperature if it is given subcutaneously or orally in an animal with a diseased intestinal tract in combination with a medium containing a sodium salt, such as physiologic or Ringer's salt solution. Schultz says that these results though definite are hardly so to the extent expected when one considers the pronounced effect produced clinically by the administration of lactose in similar conditions, and are far from explaining the pathogenesis of the fever occurring in alimentary intoxication.

Colorado Medicine, Denver

February, IX, No. 2, pp. 33-64

80 Chronic Appendicitis with Symptoms Resembling Gastric Ulcer. F. W. Bancroft, Denver.
81 Treatment of Neuralgia. H. T. Pershing, Denver.
82 Few Anatomic and Surgical Considerations of Tonsil. J. J. Pattee, Pueblo.
83 Case of Cerebrospinal Meningitis Treated with Antimeningitic Serum. A. J. Simpson, Denver.
84 Use of Antiformin in Detection of Tubercle Bacilli. M. Collins, Denver.

Cleveland Medical Journal

January, XI, No. 1, pp. 1-80

85 Differential Diagnosis of Conditions Causing Increased Intracranial Pressure. C. D. Camp, Ann Arbor, Mich.
86 Social and Economic Value of Medical Charities. J. F. Jackson, Cleveland.
87 *Hemorrhagic Infarction of Adrenals; Report of Case. A. W. M. Ellis, Cleveland.
88 Plan for Regulation of Contract Medical Practice. J. J. R. Macleod, Cleveland.
89 Chronic Deforming Arthritis Developing During Course of Tuberculous Infection of Ankle. G. L. Bauman, Cleveland.
90 Action of Caffein on Mammalian Circulation. J. D. Pilcher, Cleveland.

87. **Adrenal Infarction.**—Ellis reports a case of hemorrhagic infarction of the adrenals which, he says, occurred as the result of thrombosis of the adrenal veins. He emphasizes the fact that the condition is more common than is generally supposed and is worthy of consideration as something more than a mere pathologic curiosity. Thrombosis of the adrenal vein is probably the commonest cause of extensive adrenal hemorrhage in the adult. The diagnosis, while difficult, is possible and the condition should always be considered in patients with acute prostration with low blood-pressure. The etiology of the thrombosis is unknown. The symptomatology of the condition appears to be identical with that of hemorrhage into the adrenals from any cause, and may be summed up in the single expression, "adrenal insufficiency." The two outstanding symptoms for which one must be on the watch are marked asthenia and a low blood-pressure, pressures of 90, 80 or even 70 millimeters of mercury sometimes occurring. Bronzing of the skin and pigmentation of the mucous membranes, the essential signs of Addison's disease, are almost always lacking, the lesion being too acute for such a process to take place. The case reported by Ellis showed definite pigmentation, but the patient was extremely dirty and the pigmentation that of vagabondage rather than adrenal in origin.

Boston Medical and Surgical Journal

February 15, CLXVI, No. 7, pp. 235-274

91 Different Approaches to Hip-Joint, with Special Reference to Operations for Curved Trochanteric Osteotomy and for Arthrodesis. E. G. Brackett, Boston.
92 Prevention of Infant Mortality by Breast-Feeding. W. H. Davis, Boston.

Lancet-Clinic, Cincinnati

February 10, CVII, No. 6, pp. 143-176

93 Inguinal Hernia. C. T. Souther, Cincinnati.
94 Placenta Prævia; Symptoms and Diagnosis. W. D. Porter, Cincinnati.
95 Treatment of Placenta Prævia. E. G. Zinke, Cincinnati.
96 Improved Inhaler. H. G. Graham, Elmdale, Kan.

Journal of Cutaneous Diseases, New York

February, XXX, No. 2, pp. 53-118

97 *Eosinophilia in Scabies and in Various Diseases of Skin. J. F. Schamberg and A. Strickler, Philadelphia.
98 *Micrococcus with Unusual Characteristics as Factor in Resistant Dermatosis Resembling Acne Vulgaris. H. R. Varney and L. T. Clark, Detroit.
99 Three Unusual Forms of Cutaneous Tuberculosis. H. Fox, New York.
100 Multiple Areas of Pigmentation of Eight Years' Duration. F. C. Knowles, Philadelphia.

97. **Eosinophilia in Scabies.**—The diseases of the skin in which an increase of eosinophils can be demonstrated with a fair degree of constancy, according to the authors, are dermatitis herpetiformis, bullous dermatitis, pemphigus (including pemphigus vulgaris, pemphigus foliaceus and pemphigus vegetans), and scabies. The average eosinophilia in scabies is considerably less than in the bullous diseases. In mycosis fungoides, eosinophila of a rather high grade is found in about 45 per cent. of the cases. In a single case each of xanthoma diabeticorum and dermatitis coccidioides there was a marked eosinophilia. It is interesting to note that while chronic and extensive cases of eczema may now and then give rise to a high eosinophilia, yet the average of twenty-nine

cases of eczema, including a number of widespread eruptions, was 4.75 per cent. The authors haxe examined the blood of several extensive cases of eczema and have found a very low eosinophil content. In psoriasis, two series of twenty-five and twelve cases, respectively, gave counts of 4 and 3 per cent. It would appear, therefore, that the dictum of Canon that eosinophilia is largely proportionate to the extent, intensity and chronicity of the skin involvement rather than to any special character of the dermatosis, requires modification. It is interesting to observe in some of the reported cases of bullous eruptions, that there is a high eosinophilia about the time of a fresh outbreak, while during quiescence of the process, the eosinophils may be normal in number. Eosinophilia is common in bronchitic asthma and in various animal parasitic invasions of the intestinal tract.

98. **A New Skin Micrococcus.**—A micrococcus considerably unlike *Staphylococcus pyogenes albus* was found by Varney and Clark to cause lesions in the skin which are like those of acne, but differ in their clinical history and treatment. This micrococcus differs in morphology and in some cultural characteristics from the strains of *S. pyogenes albus* studied. Antisera produced by the micrococcus agglutinate the cultures of their origin in higher dilutions than do sera from strains of *S. pyogenes albus*. Cross agglutination tests show the agglutinins of these sera to be specific to cultures of the class of their origin. Furthermore, the acne-like lesions in which this organism was found, persist long after the acne age and while utterly resistant to the usual acne therapy, they have been cured by vaccines made from the organism.

The five cases from which this micrococcus was isolated possessed some clinical features which were common to all. They were uniformly of unusually long duration, all existing over eight years and one twenty-four years; all were beyond the age of the acne vulgaris patient. The areas involved are those most susceptible to acne vulgaris, commonly extending on the back, face and arms, unaccompanied by comedones. The lesions begin deep in the skin structure, are very slow in development, markedly sensitive on pressure, unusually firm, with the ordinary coloring of a localized skin infection. There is no tendency to rupture, the contents of the lesion being exceedingly small in amount and the destruction of the true skin is so slight that there is no pitting in the old area of the lesion.

The disease in all five cases has been most rebellious to all forms of treatment, except stock suspensions of the micrococcus described. In two of the cases a series of Roentgen-ray exposures were administered, with recurrence in both of the areas which had been thoroughly treated; this being quite an uncommon outcome from radiotherapeutic treatment in the average acne vulgaris patient. Four of the patients received inoculations of combined staphylococcus and acne bacillus suspensions, with only slight transitory improvement.

Ohio State Medical Journal, Columbus

February, VIII, No. 2, pp. 55-108

101 Practical Eugenics in Indiana. J. N. Hurty, Indianapolis.
102 Goiter Heart. A. Crotti, Columbus.
103 Hyper- and Hypothyroidism in Childhood. C. F. Tenney, Toledo.
104 Tumors of Bladder. C. M. Harpster, Toledo.
105 Frequency of Urination. A. W. Nelson, Cincinnati.
106 Case of Gangrene of Lower Extremity. A. S. McKitrick, Kenton.
107 Relation of Gastric and Duodenal Ulcer to Cancer. C. G. Souder, Toledo.
108 Drug Fiends. M. K. Isham, Columbus.

American Journal of Obstetrics and Diseases of Women and Children, New York

February, LXV, No. 410, pp. 197-392

109 *Cesarean Section and Its Alternatives in Suspect and Septic Cases. R. Peterson, Ann Arbor, Mich.
110 *Interpretation of Uterine Curettings. R. T. Frank, New York.
111 Decidua Formation in Omentum in Secondary Abdominal Pregnancy. G. W. Outerbridge, Philadelphia.
112 Transposition of Uterus and Bladder in Treatment of Extensive Cystocele and Uterine Prolapse. T. J. Watkins, Chicago.
113 *Case of Large Bilateral Bartholin Cysts. S. Wiener, New York.
114 *Epilepsy and Pregnancy. G. B. Miller, Washington, D. C.
115 *Schools for Midwives. S. J. Baker, New York.
116 Treatment of Prolapsus Uteri by Vaginofixation. E. P. Lothrop, Buffalo.
117 *Prevention of Shock. J. H. Carstens, Detroit.
118 *Anatomic Operation for Cure of Cystocele. G. R. White, Savannah, Ga
119 Influence of Gonococcus in Puerperium. J. E. King, Buffalo.
120 Intrathoracic Tuberculosis in Infancy and Childhood, Based on Study of 125 Cases. L. C. Ager, Brooklyn.
121 Diagnostic Significance of Rigidity of Neck Muscles in Children. L. Kerr, Brooklyn.
122 Why Our Obstetricians Should Either Extend Their Line of Endeavors or Confer Earlier with Pedotrophist. W. B. Hoag, New York.
123 Vesical Calculus in Boy Aged 5 Years. A. D. Smith, Brooklyn.

109. **Cesarean Section and Its Alternatives.**—Peterson emphasizes the fact that abdominal Cesarean section is always exceedingly dangerous in the presence of sepsis; that at times it is absolutely unjustifiable, craniotomy on the living or dead child being the preferable procedure.

110. **Interpretation of Uterine Curettings.**—In order to inaugurate a reform, Frank says, the clinician will have to insist, in the first place, that the pathologist, who, as a rule, takes but a perfunctory interest in uterine curettings (aside from the possibility of carcinoma, chorio-epithelioma or other tumors) take cognizance of our more recent knowledge; in the second place, he will be obliged to check in himself the pernicious and deep-rooted tendency to ascribe a great number of heterogeneous pelvic symptoms to inflammation of the endometrium.

113. **Large Bilateral Bartholin Cysts.**—Wiener's case presents a number of interesting features, the fact (1) that the cysts were bilateral; (2) their size, 118 and 125 cm., perhaps the largest on record; (3) the marked distortion and stenosis of the introitus, and (4) the rapid growth during pregnancy. This last feature is explained by the occurrence of hemorrhages due to the local congestion incident to pregnancy and the trauma of attempts at coitus.

114. **Epilepsy and Pregnancy.**—In women with epilepsy in whom pregnancy apparently causes the convulsions to become more frequent or more severe, Miller says one should always consider the necessity of terminating the pregnancy. In cases of pregnancy in epileptic women, one should watch with extreme care for indications of toxemia or the premonitory signs of eclampsia and should put an end to pregnancy at the appearance of symptoms of much less gravity than would indicate this procedure in women who are not the subjects of disease. He cites one case.

115. Abstracted in THE JOURNAL, Nov. 25, 1911, p. 1787.

117. Abstracted in THE JOURNAL, Oct. 7, 1911, p. 1313.

118. **Anatomic Operation for Cystocele.**—From a study of the anatomy of the bladder, White says it is evident that the anterior vaginal wall supports the bladder, and when a cystocele occurs it is due to this structure breaking away from the attachment to the ischiadic spines and the white line, and to remedy the condition according to anatomic principles it is necessary to restore the attachment between the lateral sulci of the vagina and the white line of the pelvic fasci. The easiest and simplest way to accomplish this is to incise the peritoneum at the side of the bladder, push the bladder aside until the white line comes into view, and then by the aid of an assistant's finger in the vagina, suture the anterior lateral side of the vagina to the white line of the pelvic fascia, and close the peritoneum; but he says an operation of this kind is seldom indicated.

The incision is made in the anterior lateral fornix of the vagina as near as can be judged along the lateral edge of the bladder and extends from the level of the cervix to near the level of the internal meatus of the urethra. The bladder is separated from the vagina to a slight extent and blunt dissection is carried out toward the side of the pelvis until the finger can be placed on the uncovered ischiadic spine which is the chief landmark in the operation. Hemorrhage is controlled by sponge pressure. The sutures are all passed back of the white line by means of a Deschamps handled needle. The first one is placed just anterior to the spine and the ends drawn out through the wound. Traction on this suture brings the white line into prominence and a second and a third suture are passed back of it about half an inch apart, being always careful to clamp the ends and prevent the sutures from becoming mixed and twisted. Each end of the three or four sutures is threaded on a curved needle. One end of the suture goes through the lateral edge of the vaginal incision,

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the other through the median edge, taking a firm hold of the vagina, when these sutures are tied snugly and the lateral fornix of the vagina is drawn up into contact with the white line. The other side is done in a similar manner and when all the sutures are tied the anterior vaginal wall stretches across from one ischiadic spine to the other. The normal shelf-like condition is reestablished, and the vagina is found to fill in the space between the pubic bones without tension.

Medical Record, New York

February 17, LXXXI, No. 2154, pp. 301-350

124 *Pathology of Chill Affecting Localized Areas of Skin. W. H. Thomson, New York.
125 General Medical Education: the Only Rational Preventive Medicine. A. L. Sorest, New York.
126 Degeneration of Posterior Columns of Spinal Cord in Non-Tabetic Individual. A. Gordon, Philadelphia.
127 Treatment of Sciatica by Perineural Infiltration. W. M. Leszynsky, New York.
128 Adenoids in School Children and Their Effect on General System. G. B. Taylor, Cameron, Tex.
129 Treatment of Simple Catarrh of Respiratory Passages with Bacterial Vaccines. A. P. Hitchens, Glenolden, Pa.

124. Pathology of Chill Affecting Localized Areas of Skin.—The principle which Thomson elucidates is that the integrity of the tissues of the body depends on the constant circulation through them of arterial and not of venous blood. Whatever interferes with the circulation of arterial blood, though it be but a short interference, nevertheless produces serious damage to the tissues. The vasomotor nerves, Thomson says, are but rarely acted on by a general stimulus. Instead, such stimuli are definitely local and yet subject to certain special laws. The first law is illustrated by the intimate association of the vasomotor nerves supplying symmetrical organs in pairs. A second law is the intimate association between the vasomotor nerves of any area of the skin and those of the internal parts underneath that area.

This is an important law, as it affords the explanation of a great many clinical facts. Thus, external applications, according to their nature, can produce marked stimulant or else sedative impressions on the circulation of the parts underneath that area. This explains why poultices may so relieve pain and inflammatory irritation when applied to the skin, but likewise this law is operative where it is important to stimulate the circulation in the stage of venous stasis. Thus, after the subsidence of the acute stage of inflammation, we have a powerful stimulant to the internal circulation by dry cupping, which is especially useful in the bronchitis of adults. Likewise the application of a blister is actively stimulant to the internal circulation, but should not be applied in the first stage of the inflammation. Every internal inflammation causes a marked hyperesthesia of the skin over the inflamed organ, which leads to any irritation of it being reflected inward to the aggravation of the inflammation.

Another important law is that through the vasomotor system special associations occur between certain widely separated parts of the body. So girls can have recourse to a very dangerous suppression of the menses by putting their feet into cold water. It is surprising how long this injurious impression is retained by the pelvic nerves, so as to cause long-continued amenorrhea.

The vasomotor nerves of the feet form another association which is of much importance, and that is with the circulation of the pharynx and the larynx. Every one knows that getting his feet wet may quickly produce a sore throat, if not an attack of hoarseness, extending finally into bronchitis.

Still another important association is between the nerves arising at the nape of the neck and the whole arterial circulation of the head and face—in fact, we may say that at the nape of the neck is the chief executive office which presides over the whole circulation above the diaphragm, including, of course, the circulation of the mucous membranes. The most extensive inflammation of mucous membranes may result from a prolonged exposure, though the rest of the body may be warmly clad. Nasal catarrh, or, in fact, catarrh of the whole respiratory tract, may soon follow from thus catching cold.

A fact of the highest moment connected with catching cold is that by the local damage to an internal part the way is opened for infecting microorganisms of the most varied kind to enter the system. Many of these infecting agents may be found throughout life, occupying the mouth and throat, but doing no harm so long as the epithelium lining of the mucous membrane is intact, such as the case with the pneumococcus, and a whole host of similar and powerful infecting agents.

The various conditions mentioned afford many indications for treatment. Thus chronic nasal catarrhs point to a weakened susceptibility to the vasomotor centers at the nape of the neck. Now nothing so restores the tone of these weakened centers as cold properly applied. Thus a cold bath or shower bath invigorates the circulation, provided always that the reaction from the impression of cold is complete, but if no, or equally imperfect reaction occurs, the patient is worse off than ever; hence chronic nasal catarrhs are best treated by sudden and very brief douching of the back of the neck with cold water, to be followed by active dry friction to assist or to promote the restoration of the circulation in the parts. During the douche the hair should be carefully protected from the water, for wet hair would only prolong the injurious effect of chill. Meanwhile, the nose itself may be treated with insufflation of a fine powder composed of two drams of subcarbonate of bismuth with six grains of thymol iodid. Any area of chronic inflammation, Thomson says, should have the corresponding cutaneous surface carefully protected. This explains the beneficial results following applications of large belladonna plasters, which should cover the whole area of the skin over the heart, but these facts are equally applicable in all chronic inflammatory conditions, whether of the lungs or of the pleura. Chest protectors on that account are reasonable. Thomson prefers the application of cotton batting to any other such measure. Similarly every patient with chronic diarrhea should have his abdomen covered by some equivalent protection. In chronic, long-standing bronchitis, Thomson has the patients wear both shirts and drawers made with perforated chamois skin, worn just over a light undergarment.

Journal of Michigan State Medical Society, Battle Creek

February, XI, No. 2, pp. 73-150

130 Frontal Lobe Abscess. R. T. Vaughan and A. E. Halstead, Chicago.
131 New Instrument for Suprapubic Cystotomy. A. McLean, Detroit.
132 Cardiospasm. W. H. Enders, Jackson.
133 Pernicious Anemia. R. R. Corbus, Grand Rapids.
134 Cesarean Section the Second Time in Two Cases. J. H. Carstens, Detroit.
135 Principles for Cure and Treatment of Hernias. H. E. Randall, Flint.
136 General Considerations of Kidney Surgery. G. C. Hafford, Albion.
137 Kidney Tuberculosis. F. W. Robbins, Detroit.
138 Surgery of Displacements of Kidneys and Colon. H. W. Longyear, Detroit.
139 Lues, Past and Present. N. De Haas, Fremont.

Western Medical Review, Omaha, Neb.

February, XVII, No. 2, pp. 57-106

140 Modern View of Meningitis. H. M. McClanahan, Omaha, Neb.
141 Rupture of Liver. D. T. Quigley, North Platte, Neb.
142 Prostatic Abscess. A. C. Stokes, Omaha, Neb.
143 Recent Experimental Work in Carcinoma. D. C. Hilton, Lincoln, Neb.
144 Chronic Interstitial Nephritis. W. E. Stewart, Stratton, Neb.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

February 3, I, No. 2666, pp. 225-284

1 Investigations of Motor Functions of Alimentary Canal by Means of Roentgen-Rays. A. F. Hertz.
2 *Importance of Pelvic Deposits in Diagnosis of Abdominal Cancer. G. G. Turner.
3 Further Examples Illustrating Cases of Chronic Toxemias at Vittel. H. J. Johnston-Lavis.
4 *Iodin as Sole Dressing for Operation Wounds. R. Alcock.
5 *New Material (Duralumin) for Surgical Appliances. E. M. Little.
6 Value of Anchored Dressings in Surgery. J. L. Thomas.
7 Erythema and Death Following Intestinal Catarrh. P. B. Unwin and A. Eddowes.
8 *Penetrating Power of Some Ointment Excipients. F. Gardiner.
9 Hydrocephalus as Sequel to Shock. A. K. Armstrong.

2. **Diagnosis of Abdominal Cancer.**—Turner particularly emphasizes that in cases of malignant disease in the upper abdomen and especially with stomach cancer, while there may be no signs of dissemination to be made out on ordinary abdominal examination and no ascites, there may be quite a considerable deposit in the pelvis, easily recognizable on rectal examination and without any symptoms to point to its presence. He cites several cases in point. The masses are to be felt in the rectovesical pouch or pouch of Douglas, on the anterior wall of the bowel, within 3 or 4 inches of the anus. They may be single or multiple, and are either detected as a definite fixed nodule or nodules or as an infiltration. As a rule, they feel about the size of a hazel nut, but they may be much larger. In Turner's cases the presence of the deposits has not given rise to any symptoms whatever, and they have only been discovered in the course of routine examination. Cases, however, have been recorded in which the growth apparently originated in the rectum.

4. **Iodin as Sole Dressing for Operation Wounds.**—Iodin as the sole dressing to be applied to the operation wound from the date of the operation to the discharge of the case, is a new departure. Alcock's paper is based on the successful results of thirty-one cases treated by such a method, which, shorn of details, may be summed up as the treatment of the operation area by tincture of iodin, applied at intervals for the first few days, the incision being left exposed to the air, and only covered by the patient's night clothes. Alcock's aim in the treatment of a wound is to let it be hermetically sealed against the entrance of outside organisms by its own dried secreted serum, and then to render this sterile to growth of the bacteria, if they should escape from the infected sweat glands. If a wound is observed two days after operation, it is often seen to have raised and slightly inflamed edges, but, with an iodin dressing the wound is seen to be flat with the surface and no surrounding swelling or redness. In the first series of cases, the custom was to lay a sterilized towel loosely on the wound after it had been painted, and before being sent out of the theater, but now that has been discarded as unnecessary, and the patient's clean clothes are simply pulled into position. In the first six cases the iodin was painted once a day on the wound for six days; but in a case of inguinal hernia there was a slight iodin rash, and so now it is only painted on for the first three days and again on the removal of the stitches on the ninth day.

The method is said to be applicable only to those cases in which the wound can be completely closed up, and can in no case be used where a drain of any kind is necessary. In all operations in which support is afterward necessary, it cannot be used, as in amputations, excisions, etc. In abdominal operations the method has been perfectly successful, but if the abdomen has been opened, either by the gridiron incision or the incision in the course of the rectus, the wound has been stitched up in separate layers, and any strain of the muscles only tends to approximate the fibers and sheaths. In some forms of umbilical and ventral hernia, where there is no muscular support, some kind of binder, such as a sterilized towel, might be necessary until all danger of vomiting had passed, when the part would be freshly painted with iodin. In inguinal hernia no kind of support is needed. All the cases treated by this method have given excellent results, not even a stitch abscess having been observed.

5. **New Material for Surgical Appliances.**—This metal is an alloy of aluminum, slightly heavier than that element. It has a specific gravity of 2.8, while aluminum is 2.7 and steel 8, so that it is rather more than one-third the weight of steel. Its strength is about the same as that of mild steel of the same bulk. Like brass it can be made stiffer by hammering, and it is supplied in varying degrees of hardness, according to the purposes for which it is required. It is said to be practically non-corrosible, being scarcely affected by prolonged exposure to a concentrated solution of sodium chlorid, ammonium sulphate in 10 per cent. solution, ammonia, sulphuric or nitric acids, sulphuretted hydrogen solution or sea water. Caustic alkalis, however, attack it quickly. Duralumin takes a high polish, which is scarcely dulled by prolonged exposure to the air. It cannot be brazed, but it can be soldered; as soldering has an annealing effect on it, it is not often advisable to use solder. Nor can it be tempered like steel, but the hardening effect of hammering or rolling takes the place of tempering to some extent. Little has had various orthopedic appliances and splints made from this metal and is well satisfied with it.

8. **Penetrating Power of Some Ointment Excipients.**—So far the results from Gardiner's experiments show the superiority of olive oil and cedar oil among liquid excipients, the first being the better: goose grease is first among the more solid fats, and benzoated lard comes next. Glycerite of starch with cold cream, glycerite of starch with hydrous lanolin are the best of the combinations.

Lancet, London

January 27, I, No. 4, pp. 211-274

10 Mental Processes in Sanity and Insanity. T. C. Shaw.
11 Percentage of Ether Vapor Administered in So-Called "Open Ether" Methods. Sir F. Hewitt and W. L. Symes.
12 *Alcohol Injection of Gasserian Ganglion for Trigeminal Neuralgia. W. Harris.
13 Surgical Treatment of Sterility in Women. F. J. McCann.
14 Bacillus Diphtheriæ. I. C. Tengely.
15 Ulcerating Granuloma of Pudena, as Found in Government Lock Hospitals, Western Australia. D. Steel.
16 Glaucoma. L. Hill.
17 Case of Rhinitis Caseosa. H. W. Wilson.
18 Will Sickness be Increased Under Insurance Act? F. Milton.

February 3, I, No. 5, pp. 275-342

19 Medicolegal Relationships of General Paralysis of Insane. Sir G. H. Savage.
20 *Heart-Block and Nodal Rhythm in Acute Infections. J. Cowan, G. B. Fleming and A. M. Kennedy.
21 *Salvarsan in Syphilis. A. Forrester.
22 Syphilitic Aortitis with Valvular Incompetency. A. Morison.
23 Clinical Significance of Roentgen-Ray and Radium Measurements. S. Russ.
24 *Membranous Rhinitis: Its Relation to Diphtheria and Its Treatment by Autogenous Vaccine. D. Forbes and H. P. Newsholme.
25 School Closure in Measles. A. B. Raffle.
26 *Operation for Hemorrhoids and Chronic Constipation. C. A. Bucklin.
27 Origin and Wholesomeness of Saline Waters in London Basin. J. C. Thresh.

12. **Treatment of Trigeminal Neuralgia.**—During the last three and a half years Harris has seen ninety cases of intractable trigeminal neuralgia, eighty-six of which he has treated with alcohol injection; sixty-five were females and twenty-five were males. In only three cases was no relief obtained, owing to the nerve not being found; one of these had previously been operated on unsuccessfully for gasserectomy, and the scar tissue was so dense that it was impossible to manipulate the needle. In three others slight definite improvement resulted, and in the remaining eighty cases complete relief was obtained for intervals varying from as little as two months and four months in two cases to two and a half years and more. For the majority, Harris says twelve months' complete relief of pain may be looked on as a minimum, if two to three years and more may be expected when the depth of the anesthesia indicates that the nerve has been properly destroyed by the alcohol.

Failures in cases of genuine trigeminal neuralgia, he says, are due to errors in technic, owing to which the nerve is neither struck nor injected with the drug. Strong alcohol injected into any nerve trunk destroys the nerve fibers almost instantaneously; it is, indeed, a chemical resection of the nerve, and total loss of function of the nerve will ensue until regeneration occurs. It is to prevent this regeneration of nerve fibers that Harris has adopted a modified technic in order to destroy the nerve cells in the Gasserian ganglion, and thus to render impossible the down-growth of new nerve fibrils to replace those destroyed by the alcohol. He carries the injection of strong alcohol through the foramen ovale into the gasserian ganglion itself, in order that, by destroying the nerve cells in the ganglion, regeneration of nerve fibers along the degenerated nerve trunks shall be prevented, and thus to substitute permanent cure of the pain for the temporary relief of a few months to a few years, which was hitherto obtainable. In this way it appears to Harris possible to obtain all the advantages of the Krause-Hartley operation without its attendant deformity and dangers, or even the necessity of a general anesthetic.

20. **Heart-Block and Nodal Rhythm in Acute Infections.**—In a case of diphtheria, with full heart-block, the *a-v* bundle and node were found by the authors to be involved in an acute

inflammatory process, and similar lesions were present in the a-v bundle in a case of malignant endocarditis in which conductivity was defective. In three cases of acute endocarditis, with nodal rhythm, the a-v node was acutely inflamed, the bundle being only and but slightly affected in one instance.

21. **Salvarsan in Syphilis.**—The following maxims by Foerster place the therapeutic status of salvarsan squarely before us: 1. Salvarsan is of special value where rapidity of action or concentration of treatment is desirable, e. g., for the removal of certain infective lesions, for patients whose conditions of life render a regular treatment impossible. 2. It is widely applicable, as its toxicity is small. Cardiac disease, syphilis of the nervous system and concomitant grave maladies are its chief contra-indications. 3. The intravenous method is the only recommendable one. 4. Repeated medium doses are preferable to a few large ones. 5. Its use is indicated where mercury has failed. 6. In very early cases an attempt at aborting the disease by excising the chancre and administering salvarsan is advisable. 7. In florid secondary syphilis combined salvarsan and mercury treatment should also be submitted to this combined treatment. 8. The severe tertiary cases should also be submitted to this combined treatment. 9. In mild tertiary cases salvarsan recommends itself by the rapidity of the removal of the lesions, and by the long duration of the subsequent latency. 10. Truly malignant cases are as hopeless under salvarsan treatment as otherwise. 11. In late latent cases and in parasyphilis the administration of salvarsan presents no utlity.

24. **Membranous Rhinitis.**—The connection between membranous rhinitis and diphtheria in the school outbreak reported by Forbes and Newsholme was so intimate as to make it almost certain that there was a causal relation between them. He regards it as a point of practical importance that the comparatively frequent occurrence and great infectivity of membranous rhinitis should be recognized widely. Missed cases of the disease would readily account for a not inconsiderable proportion of school diphtheria. An autogenous vaccine seemed to be of definite value in removing membrane, getting rid of nasal discharge, and hence greatly reducing the infectivity of membranous rhinitis. But the vaccine did not appear to be capable of completing the work of elimination after the membrane had gone, i. e., after the vascular and lymphatic channels by which antibodies can reach the bacilli had been removed.

26. **Operation for Hemorrhoids and Chronic Constipation.**—Bucklin's procedure consists in extensive stretching of the sphincter with a bivalve speculum, and then hard stumps resulting from previous hemorrhoids are removed with the forceps and a knife. Other forms of this disease are treated with the forceps and a No. 1 catgut ligature, after which the hemorrhoids are cut off outside of the ligature; or when the swellings are too numerous they may be treated with hypodermic injections of 30 per cent. phenol in alcohol. The slits made in the mucous membrane by operating are better closed by stitches of No. 1 catgut for the purpose of avoiding complications. The patient should be confined in bed for five days after the operation. A bandage has not been found necessary in cases that have been operated. The bowels should be locked up by giving a dose of 1 grain of opium morning and evening. The giving of opium, Bucklin says, should be commenced as soon as the patient is able to take the medicine after the operation. On the evening of the fifth day the opium should be discontinued and the patient should take a similar dose of the same cathartic medicine as was used at the commencement of this treatment. On the sixth day the patient can be discharged entirely free from any danger of the hemorrhoids returning. When the trouble is chronic constipation, it will rapidly disappear. These results are attributed to the reduced action produced in the sphincters by their extensive stretching.

Indian Medical Gazette, Calcutta

January, XLVII, No. 1, pp. 1-48

28 Appointment to Service Examinations. D. G. Crawford.
29 Abor Arrow Poison. F. N. Windsor.
30 Teaching of Anatomy. H. Lack.
31 *Air in Bladder Among Women. C. C. Barry.
32 Fractures Treated by Operations. A. M. Leake.
33 Improved Methods of Using Tonsil Guillotine. A. H. Proctor.
34 Value of Antistreptococcus Serum (Polyvalent) in Erysipelas. N. S. Simpson.

31. **Air in Bladder Among Women.**—In the last five years Barry has come across four cases of automatic distention of the bladder with atmospheric air in women. Three of these cases occurred among European ladies, and one, the fourth case, was a native hospital patient. In two cases, while this symptom lasted, there was acute pain of a colicky nature whenever the bladder got greatly distended with air; in one there was considerable inconvenience, while in the fourth (native) case the condition gave rise to very little trouble, but the symptoms lasted but a short time. In each patient the temperature remained normal, and the urine also showed no signs of such contamination as would be sure to arise should any, however small, opening exist between the bladder and the intestine. The air, too, which was expelled from the bladder was absolutely odorless, and except for the pain arising from the acute distention of this viscus, no serious symptom was present, and in the intervals the patient felt quite well.

In all patients one condition was constant, and that was that their muscular systems had lost tone and the visible muscles were flaccid, with little contractile power. It is probable, therefore, that the muscular tissues of the bladder walls were in a like flaccid condition, and Barry believes the air was aspirated into the bladder by the abdominal respiratory movements in a somewhat analogous manner to that in which the rectum or vagina can be ballooned by elevating the pelvis and allowing free admission of air. The treatment, Barry believes, to be indicated is to attend to any condition of the pelvic organs, such as is likely to impair the contractility of the bladder (i. e., in the first case chronic endometritis and subinvolution of the uterus), and at the same time to administer such drugs as ergot and strychnin that will improve the patient's general condition and remedy the loss of muscular tone.

Journal of Laryngology, Rhinology and Otology, London

February, XXVII, No. 2, pp. 73-128

35 Teaching of Otology and Laryngology in Denmark. P. T. Haid.
36 *Idiopathic Spasm of Esophagus as Common Diagnostic Error. W. Hill.
37 *Submucous Resection of Nasal Septum: Analysis of 130 Cases. D. McKenzie.
38 Simplified Insufflator for Use in Treatment of Diseases of Throat, Nose and Ear. J. Horne.

36. **Idiopathic Spasm of Esophagus.**—Hill claims that functional dysphagia is usually due to pharyngeal paresis, rarely to pharyngeal spasm; there may occasionally be concomitant paresis of the gullet; in other words, weak peristaltic action, but pure primary spasm of the esophagus, whether functional or organic, is in his opinion and experience "often heard of but never seen." Instead of idiopathic spasm of the gullet being usually the first explanation thought of in a case in which food sticks within the thorax, he says it ought to be the last. If the difficulty in swallowing is truly functional, it is probably due to either pharyngeal paresis, or to want of coordination of the muscular movements of deglutition, but if the difficulty is really located purely in the esophagus, the presumption is that organic lesion will be found if sought for. In a large proportion of cases in which Hill has subsequently found either acute or subacute esophagitis, cicatricial stricture, peri-esophageal abscess and carcinoma, he has ascertained that the condition has been confidently diagnosed in the first instance as spasm by one or more medical men.

37. **Submucous Resection of Nasal Septum.**—McKenzie calls attention to the fact that this operation necessarily impairs the strength of the skeleton of the nose, and that a blow, even a slight blow, on it may flatten the organ beyond recognition and beyond remedy. For this reason boxing, football, wrestling, etc., should be avoided by people who have had the septal resection performed unless they wear some kind of nose-guard. That there have been cases in which the operation has been followed by spontaneous flattening of the end of the nose is also true.

Clinical Journal, London

January 17, XXXIX, No. 15, pp. 225-240

39 Nature of Hysteria. W. H. B. Stoddart.
40 Diagnosis and Treatment of Intranasal Suppuration. J. Donelan.
41 Deaths of English Kings. J. Rae.

January 24, XXXIX, No. 16, pp. 241-256

42 Early Operation in Inflammation of Appendix. W. H. Battle.
43 Clinical Demonstration of Cases of Skin Disease. J. M. H. Macleod.
44 Deaths of English Kings. J. Rae.

January 31, XXXIX, No. 17, pp. 257-272

45 Diagnosis of Pleuritic Effusion. F. Taylor.
46 Hemorrhoids. A. Baldwin.

Medical Press and Circular, London

January 17, XCIII, No. 3793, pp. 53-76

47 Parasyphilitic Disease in Infancy. R. Koenigstein.
48 Delayed Traumatic Spondylitis. P. Rostaine.
49 Six Cases of Pneumothorax. J. O. Symes.
50 Vaccine Treatment: with Special Reference to Pyorrhea Alveolaris. E. Glynn.

January 24, XCIII, No. 3794, pp. 77-102

51 Anterior Poliomyelitis and Polioencephalomyelitis. T. K. Monro.
52 Case of Myoma Undergoing Sarcomatous Degeneration. Sir W. Smyly.
53 *Case in Which a Papyraceous Fetus Was Expelled Before a Living Twin. Sir W. Smyly.
54 Epidemic Poliomyelitis. A. Marc.
55 Vaccine Treatment: with Special Reference to Pyorrhea Alveolaris. E. Glynn.
56 Anterior Poliomyelitis and Polioencephalomyelitis. T. K. Monro.

January 31, XCIII, No. 3795, pp. 103-128

57 *Should Febrile Tuberculosis Be Treated with Tuberculin? L. Renon.
58 *Simultaneous Treatment of Twenty-Seven Cases of Burns. F. Alexander.
59 Nutritive Effects of Beef Extract. W. H. Thompson, W. Caldwell and T. A. Wallace.

53. **Papyraceous Fetus Expelled Before Living Twin.**—About eight years ago Smyly attended a lady in her first confinement; she was in perfect health and so was her husband. The labor was in every way normal and he made no vaginal examination. Her convalescence was afebrile and apparently complete. However, as years passed by, and no more children arrived, she became anxious, and consulted Smyly again in 1906. Beyond the sterility she complained of nothing. Her menstruation was rather profuse and lasted six to seven days, and she had some pain with it, but this she assured Smyly had always been her normal condition. On examination he found nothing but a little discharge of mucus from the os. He diagnosed endometritis and treated it in the usual way, curetting and applying various caustics to the endometrium, but without effect.

In April, 1910, she at last became pregnant, but aborted at the seventh week. August 15, just seven calendar months from the last menstrual period, and without any warning, a small papyraceous fetus came away. A doctor was sent for, and after waiting a considerable time and there being no sign of the placenta following, he sent for another doctor, who saw her on the afternoon of the following day. Under the circumstances there was considerable doubt as to the best course to pursue. To remove the placenta would have destroyed a second child, which was still alive in the uterus, but had scarcely reached a viable condition, while, on the other hand, to leave the placenta of the first child involved a considerable risk of septic poisoning to the mother. However, considering the mother's intense anxiety to save the second child they determined to adopt the second alternative and so drew down the small funis and divided it as high up in the cervix as possible.

On the third day the temperature began to rise, and the following day the patient had a considerable amount of fever. The patient having been anesthetized, Smyly found the head presenting in the first position. The cervix was long and dilated, and below the head there was a firm ring, which he believes to have been the contraction ring, and through which he could with considerable difficulty pass two fingers. He then performed bipolar version, which was exceptionally difficult, as there seemed to be very little liquor amnii, and extracted the child very slowly, owing to the resistance of the ring. It was, however, delivered dead after a considerable time without injury to the maternal tissues. The placenta and membranes of this child followed in about half an hour. They appeared perfectly normal and fresh, but there was no sign of the other placenta or cord. Smyly found the placenta of the first child firmly adherent in the neighborhood of the right cornu, and finally succeeded in detaching and removing it.

57. **Febrile Tuberculosis and Tuberculin.**—With a good tuberculin and proper care, seconded by some experience of the tuberculin treatment and incessant surveillance, Renon says the treatment of slightly febrile cases of tuberculosis (37.4 to 37.8 C.) may be undertaken without undue risk; but in general practice, to treat really febrile cases of the disease with tuberculin, without the requisite experience, is to expose the patients to serious dangers and possibly to create insurmountable obstacles to a successful treatment.

58. **Treatment of Burns.**—All of Alexander's patients were injured while trying to escape from the second floor of a burning building, and nearly every one of them presented burns of the face, arms and breast. There were no cases of asphyxia nor of edema of the glottis. Four of the patients developed ulceration of the duodenum. The hemorrhage in all of the four cases was severe. While all received the usual treatment, Alexander attributes the recovery of every one of the patients complicated by duodenal ulcers to the continual and rigid supervision of the diet, all being strictly limited to liquids. Seven cases of burns of the first, second and third degree were treated by the boric-acid solution bath. Picric-acid solution was employed in five cases, including burns of the first, second and third degree. Carron oil was used in five cases presenting the second and third degree lesions. Ichthyol ointment with a lanolin base was resorted to in five cases of the third degree. Forty-eight grains of ichthyol were added to 2 drams of olive oil and incorporated with enough lanolin to make 3 ounces. The boric-acid solution baths were given for two to six hours, and repeated at two to six hours intervals. The cases in which picric acid solution was used were dressed with loose gauze from the ordinary roll, this being saturated with the picric-acid solution and then covered with oiled paper. The gauze was kept continually moist and the dressing was renewed every second or third day. The ichthyol ointment was applied to the lesions, covered with gauze and then with oiled paper. In every case all lesions were thoroughly cleansed with water and soap before any dressing was applied.

In burns of the first degree, Alexander says, the picric-acid solution gave results far superior to those of any other dressings, and in cases of the second degree the effect was perfectly satisfactory. He regards the "bug-a-boo" of toxicity from this agent with little concern, the areas on which it was applied being so extensive that there was ample opportunity for absorption. Some of the patients voided darkened urine, but Alexander was always able to clear this up promptly and to insure speedy elimination by the administration of daily doses of Epsom salts. The boric-acid solution baths gave the best results in burns of the second degree and the ichthyol formula in burns of the third degree.

Annales de l'Institut Pasteur, Paris

January, XXVI, No. 1, pp. 1-79

60 Experimental Research on the Pneumococcus. II. (Conservation de la virulence des pneumocoques humains pour la souris.) C. Truche and L. Cotoni.
61 Extraction of Zymase by Simple Maceration. A. Lebedeff.
62 Action of Light on Diastases. I. (Action des différentes radiations.) H. Agulhon.
63 Experimental Aspergillosis. (Germination in vivo des spores d'A. niger et d'A. fumigatus.) B. Santon.
64 Hemolysis in Spleen and Liver. (La destruction intrasplénique et intrahépatique de corpuscles rouges du sang dans les conditions normales et pathologiques.) I. I. Lintvarev. (To be continued.)

Archives des Maladies du Cœur, etc., Paris

January, V, No. 1, pp. 1-80

65 Bradycardia with Jaundice. (De la physiologie pathologique du pouls lent ictérique—Bradycardie totale s'accélérant par l'atropine.) C. Lian and L. L. Caen.
66 Arhythmia Induced by Manipulation of Abnormally Located Heart. (Arythmie provoquée chez l'homme par l'excitation manuelle du cœur, à travers la paroi abdominale, chez un sujet à cœur ectopié.) D. Danielopolu.
67 The Red Corpuscles Containing Granules and the Stippled Cells. (A propos des hématies granuleuses—granuloréticulo-filamenteuses—et des hématies ponctuées.) R. Hertz.

Bulletin de l'Académie de Médecine, Paris

January 16, LXXXVI, No. 3, pp. 33-48

68 Carrel's Cultivation of Tissues in Vitro. (La vie alternante des tissus en dehors de l'organisme d'après les nouvelles expériences de M. Alexis Carrel.) S. Pozzi.
69 *Mesenteric Thrombosis or Embolism. (Infarctus de l'intestin grêle par oblitération artérielle ou veineuse.) E. Boinet.

69. **Mesenteric Embolism.**—Boinet reviews the diagnosis and prognosis of hemorrhagic infarction of the intestine, white infarction from shutting off of the blood and the limited and curable form of infarction from obliteration of smaller branches of the mesenteric or intestinal vessels. He refers to the article in THE JOURNAL, July 9, 1904, page 110, based on 214 cases of mesenteric embolism or thrombosis, and states that since that date large numbers of cases have been published. The diagnosis is aided by some cardiovascular affection favoring embolism, blood in the stools not explainable otherwise, subnormal temperature, violent paroxysmal pain and a tumefaction in the mesentery. When the bowel is occluded, the succession of diarrhea and ileus is instructive. An exploratory laparotomy may aid in differentiation; three survived in the eight cases he cites. Eleven of twenty-four patients recovered after enterectomy; that is, 45.8 per cent. Boinet reports a case of hemorrhagic infarction of the small intestine from mesenteric embolism in the course of an aortitis, with death the fourth day from acute peritonitis. He also reports a case of gangrene from obliteration of the superior mesenteric vessels; profuse diarrhea was the main symptom. Curable infarction, and particularly limited mesenteric and intestinal embolism, deserve special study. Boinet has encountered a number of such cases in debilitated men with pneumonia or bronchitis brought to the hospital from the municipal lodging-house. The edema and small infarcts of the intestine are rarely diagnosed in these cases, as they are liable to subside spontaneously, but they are probably the source of sclerous stricture of the intestine, and probably have some connection with the attacks of pain in the syndrome of intestinal arteriosclerosis.

Bulletins de la Société de Pédiatrie, Paris

December, XIII, No. 9, pp. 421-478

70 *Intestinal Invagination. (Rapport sur deux observations d'invagination intestinale par le Dr. P. Grisel.) L. Ombrédanne.
71 Desiccated Milk in Infant Feeding. (Poudre de lait ou lait sec dans l'alimentation des enfants.) E. C. Avragnet, Bloch-Michel and Borlencourt.
72 *Diffuse Edematous Scleroderma Benefited by Thyroid Treatment. E. Apert and Leblanc.
73 Cranlotabes and Syphilis. J. Roux.
74 *Latent Hypertrophy of the Thymus. (Les hypertrophies thymiques latentes et les "petits signes" de l'hypertrophie du thymus.) L. D'Oelsnitz.
75 Roentgenoscopy of Hypertrophy of the Thymus. (Les caractères de l'image radioscopique dans l'hypertrophie du thymus.) L. D'Oelsnitz and Paschetta.

70. **Intestinal Invagination.**—Grisel reports two cases in an infant and boy of 12 and, with Ombrédanne, discusses the differential points for locating the invagination. In the boy the invagination became spontaneously reduced. Invagination in the ileocecal region causes thick and bloody mucous stools, while with ileocolic invagination there is a flood of bloody thin stool; the small intestine invaginated in the cecum and colon, and strangulated by the ileocecal valve discharges quantities of bloody lymph. Invagination of the ileum causes stools of nearly pure blood, but moderate in amount, soon becoming fetid from the rapid gangrene of the invaginated segment.

72. **Sclerema Following Suppuration of Lymph-Nodes in the Neck.**—The neck and cheeks of the boy of 14 looked normal, but felt like wood to the touch. When he comes in out of the cold his brow and cheeks feel like those of a cadaver on ice. He is unable to open his lips more than 2 cm. and to smile is impossible; mastication is extremely difficult, although the tongue and throat are apparently normal. Aside from this rigid condition of the teguments the child is healthy. The condition developed after the spontaneous subsidence of lymphadenitis in the neck. Thyroid treatment has been commenced and the condition is improving under it. The term "generalized edematous scleroderma" is scarcely applicable, as there is no edema, but a hard infiltration causing a hidebound condition.

74. **Signs of Hypertrophy of the Thymus.**—The minor signs of latent hypertrophy are said to be the puffy and pale aspect, the cyanotic complexion, persisting, or intermittent, or merely a bluish tint around the mouth. The veins are more prominent than usual, dilated on the side of the skull, the eyes are a little staring or protruding. Such children are sluggish; the fontanelles are sometimes taut—this hypertension of the fontanelle in the absence of meningeal reaction seems to be a sign of considerable value. Like the other signs it indicates some disturbance in the return circulation. Respiration may be labored. There may be a suggestion of stridor, accentuated as the child reclines. The reaction was the reverse of this in one child with a large thymus, the stridor coming on as the child sat up. These different minor signs are fleeting and variable. The diagnosis is sustained by the unusual extent and intensity of the dulness over the manubrium toward the left and the Roentgen-ray findings. D'Oelsnitz gives a number of points useful in roentgenoscopy, first eliminating mediastinal lymphadenitis. The shadow of the normal thymus is no wider than the shadow of the sternum and vertebræ; any increase in the shadow toward the left should suggest an enlarged thymus, confirmed by the sharp outline. In thirteen infants a few days old, examined with the rays, an abnormal thymus shadow was found in two. In three cases he has sought to modify the thymus by Roentgen exposures; the results are satisfactory to date.

Journal de Médecine de Bordeaux

January 21, XLII, No. 3, pp. 33-48

76 *Removal of Rectal Cancer by the Natural Route with Retention of Anus. (Extirpation du rectum par les voies naturelles avec conservation du sphincter.) A. Venot.

76. **Resection of Rectum with Retention of Sphincter.**—Venot lauds the results of Villard's operation for rectal cancer and reports a case. It is astonishing, he remarks, the extent to which the tumor can be mobilized and drawn out through the dilated anus. He paints all the protruding portion with iodin and then incises the rectum around below the tumor, and throws a ligature around the central stump, which is pulled farther out and detached from its connection at the front and sides, not at the rear. Then the rectum is severed above the tumor and this end of the cancer segment is clamped tight. This segment is then tilted forward and separated at the rear from above downward. By this technic the bleeding is easily controlled, and there are not many instruments in the way, while there is no danger of blindly cutting the inferior mesenteric and superior hemorrhoid arteries.

Lyon Médical, Lyons

January 21, CXVIII, No. 3, pp. 117-160

77 *Induced Pneumothorax for Unilateral Tuberculosis. (Evolution d'un pneumothorax artificiel; type normal.) Balvay and Arcelin.

77. **Induced Pneumothorax.**—In the case described, with four plates showing the successive findings under roentgenoscopic control, the lesions were on one side only and fibrocaseous. They had shown no improvement during eighteen months of general measures, and the patient's health as a whole was relatively good, with no symptoms of general intoxication. She was a woman of 27. About 2,200 c.c. of nitrogen was injected at four sittings with four-day intervals. The pleura being normal, there was no pain nor discomfort. The injection was repeated about every three weeks afterward, and the patient resumed her work as a telegraph operator, apparently in perfect health, six months after the pneumothorax was first applied. This case is cited as the typical indications and routine technic, and the results that may be anticipated in these conditions.

Obstétrique, Paris

December, IV, N. S., No. 12, pp. 1113-1285

78 Mechanical Modifications During Pregnancy of Abdominal and Thoracic Organs. (Modifications apportées par la grossesse à la statique des organes abdominaux et thoraciques.) G. Raulot-Lapointe and J. Thomas.
79 *Pathogenesis and Treatment of Puerperal Eclampsia. P. Bar and Commandeur.

79. **Puerperal Eclampsia.**—Bar and Commandeur conclude their review of the last fifteen years' research on eclampsia with the statement that treatment still can be only symptomatic, with the main reliance on prophylaxis. The progress realized to date has been mainly surgical. In the medical treatment the renaissance of venesection is the main feature of the last few years. Saline infusion is considered by some as possibly dangerous on account of being hypertensive; sugar solution does not have this disadvantage. Vaginal cesarean section in the cases with rigid cervix is the best means to evacuate the uterus at once, but it is a serious operation on account of the complications of the operation that may follow, including injury of the bladder and hemorrhage after delivery. Decapsulation of the kidneys with or without nephrotomy, in spite of its high mortality, still deserves a place in the treatment of postpartum eclampsia when there is persisting anuria and serious disturbance in the secretion of urine.

Presse Médicale, Paris

January 20, XX, No. 6, pp. 57-68

80 Medical Treatment of Tuberculosis of the Kidney. (Le rôle du médecin dans le traitement de la tuberculose rénale.) J. Castaigne.

81 Albuminuria. (Albuminuries leucopathiques.) E. Feuillié.

82 Treatment of Hyperchlorhydria. (Traitement médicamenteux de l'hyperchlorhydrie. Les alcalins, le bismuth et les graisses.) A. Martinet.

January 24, No. 7, pp. 69-76

83 Constitutional Inferiority. (Notions générales sur les prédispositions et les immunités morbides.) C. Achard.

January 27, No. 8, pp. 77-92

84 Minute Doses of Digitalis in Weakness of Left Heart. (Le traitement préventif de l'asystolie par les doses minimes de digitale.) A. Mayor.

85 Induced Pneumothorax in Chronic Pulmonary Tuberculosis. (Mécanisme de l'action curative du pneumothorax artificiel dans la tuberculose pulmonaire chronique.) M. Molle.

86 Diuresis and Elimination of Chlorids Under Hydrotherapy. (Recherches sur la diurèse comparée de l'eau et des chlorures chez l'homme sain sous l'influence des bains carbogazeux naturels à température indifférente de Royat.) A. Mougeot.

Semaine Médicale, Paris

January 24, XXXII, No. 4, pp. 37-48

87 Emotional Influences on Disturbances in Speech. (Du rôle de l'émotion en pathologie verbale: bégaiement, blésité.) Chervin.

January 31, No. 5, pp. 48-60

88 Treatment of Retention of Secundines with Delivery at Term. (La thérapeutique de la rétention des débris ovulaires après l'accouchement à terme.) R. de Boris.

89 *Modifications of the Blood in Roentgenologists. (Les modifications du sang chez les radiologues.) J. Lhermitte.

89. **Changes in the Blood in Roentgenologists.**—Lhermitte cites a total of eleven roentgenologists whose blood has been examined by Aubertin with the discovery of mononucleosis in five. Comparing these with the ten examined by Jagic and Schwarz, it is evident, he says, that the professional handling of the Roentgen rays entails abnormal functioning to a certain extent on the part of the blood-producing apparatus. Although roentgenologists generally appear in flourishing health, these anomalies in the blood demand attention and impose prudence. Aubertin did not find the modifications in the blood of the individuals he examined of the same type as Jagic encountered, namely a leukopenia and lymphocytosis, but the changes in all the abnormal cases indicated a tendency to morbid conditions on the part of the blood.

Archiv für Gynaekologie, Berlin

XCV, No. 3, pp. 551-751. Last indexed February 10, p. 445

90 Bacteriologic Research on Parturients. (Saprämie oder Bakteriämie.) O. Burckhardt. (Zur Kenntnis der Saprämie und Bakteriämie bei fieberhaften Aborten.) H. Freidrich.

91 *Glandular Hyperplasia of Uterine Mucosa in Relation to Uterine Hemorrhage. (Die glanduläre Hyperplasie der Uterusschleimhaut, ihre Beziehungen zu den Uterusblutungen.) G. Schickele and R. Keller.

92 *Factors Responsible for Uterine Hemorrhage. (Ueber die sogenannte chronische Metritis und die kleincystische Degeneration der Ovarien; ihre Beziehungen zu den Uterusblutungen.) G. Schickele and R. Keller.

93 History of Salpingitis. (Zur Histologie entzündlicher Tuberkrankungen mit bes. Berücksichtigung der gonorrhoischen.) H. Ploeger.

94 The Uterine Mucosa. (Die Schleimhaut der Gebärmutter.) P. C. T. van der Hoeven.

95 Diagnostic Importance of Injection of Stain for Chromocystoscopy in Gynecology. (Die diagnostische Verwertung der Chromocystoskopie beim Weibe.) F. Müller.

96 Biologic Research on Maternal and Umbilical Blood. (Biologische Studien über mütterliches und Nabelschnurblut.) E. v. Graff and J. von Zubrzycki.

91. **Glandular Hyperplasia of Uterine Mucosa in Relation to Uterine Hemorrhage.**—Schickele and Keller have studied the histology, with special reference to endometritis, metritis and uterine hemorrhage, of material from 430 operative cases. They conclude from their research that there is a hyperplasia and hypertrophy of the uterine glands which is a pathologic condition and is independent of the menstrual changes in the uterine mucosa; also that the condition is rarely caused by inflammation. They advise dropping the term "glandular endometritis" and, instead, to speak of a hyperplastic and hypertrophic endometrium. There seemed to be no etiologic relation between these glandular changes and hemorrhage from the uterus; the changes were sometimes accompanied by hemorrhage and in other cases there was severe bleeding without these changes. Most significant were their observations in regard to the effect of curettage, which up to the present time has been used so extensively for this so-called glandular endometritis. Out of 175 cases in which curetting was done, they can report on about 111. In thirty-eight cases there has been no severe hemorrhage since the curetting; of these thirty-eight patients only six had hypertrophy or hyperplasia of the glands in the uterine mucous membrane, independent of menstruation. The sixty-one cases with a negative result include nine with hyperplastic or hypertrophic glands independent of menstruation. In thirteen cases vaginal hysterectomy had to be done for recurring hemorrhages. The failure of curetting to cure in so many cases confirms the lack of connection between the hyperplasia and hypertrophy of the glands and the hemorrhages.

92. **Chronic Metritis and Small Cystic Degenerated Ovaries in Relation to Hemorrhage of the Uterus.**—Schickele and Keller studied sections of the body of the uterus, hoping thereby to find an explanation for hemorrhage of the uterus (not dependent on myoma or carcinoma) but without any definite results. In thirty cases sections were taken from the wall close to the mucous membrane, close to the peritoneum and from the middle of the uterus. In some cases the muscle layer was very thick, in others the connective tissue, and sometimes there was a widening of the blood-vessels, but the functions of the uterus did not seem to depend on the muscle tissue content of the walls. The study of seven ovaries in which there was cystic degeneration was equally unsatisfactory. They suggest that possibly a physiologic explanation may be found in the functioning of the ovaries, and they urge further study of the ovaries along the same lines as the adrenals and their secretion have been studied.

Archiv für klinische Chirurgie, Berlin

XCVII, No. 1, pp. 1-258. Last indexed February 24

97 Experimental Transplantation of Epiphyseal Cartilage. (Die homoplastische Transplantation des Intermediärknorpels im Thierexperiment.) E. Rehn and Wakabayashi.

98 Regeneration of Bone Marrow in Transplanted Joints. (Zur Regeneration des Knochenmarks bei der homoplastischen Gelenktransplantation im Thierexperiment.) E. Rehn.

99 The Spread of the Inflammation in Ascending Pyelonephritis. (Untersuchungen über die Ausbreitung des entzündlichen Processes im Nierenparenchym bei der aufsteigenden Pyelonephritis.) A. Müller.

100 Incision, Suture, Etc., in Gall-Stone Operations. (Ueber den Bauchdeckenschnitt, die Bauchnaht und die Tamponade bei Gallensteinoperationen.) H. Kehr.

101 *Treatment of Tuberculosis of the Knee. (Zur Behandlung der Tuberculose des Kniegelenks.) J. B. Seldowitsch.

102 Aseptic Form of So-Called Acute Hemorrhagic Pancreatitis. P. Babitzki.

103 Retroperitoneal Ganglioneuroma. (Neuroma verum gangliosum myelinicum nervi sympathici.) S. Sato.

104 Simple Chronic Inflammatory Stricture of the Intestine. (Ueber die einfache chronische entzündliche Strictur des Darmes.) S. Goto.

105 Syphilitic Processes in Ileocecum. (Beitrag zur erworbenen Syphilis der Ileocoecalgegend.) S. Goto.

106 Lymphomatous Changes in the Thyroid. (Struma lymphomatosa.) H. Hashimoto.

101. **Treatment of Tuberculosis of the Knee.**—Seldowitsch compares his results with those of other surgeons. In all he has seen 182 cases of tuberculosis of the knee, nearly all in women, and has operated in sixty-eight. He did a resection in fifty-seven cases, an arthrotomy in nine cases and a primary amputation in two. The outcome was successful in 61.05 per cent., although in thirty-three of the fifty-seven resected cases contracture and subluxation had already devel-

oped. In opening the joint he uses the half-moon incision, cuts the lateral ligament if necessary, and chisels away the affected portions of the joint. The patella may be used to bridge over the resected surface. Formerly he used to wash out the joint with a hot salt and iodoform solution; now he merely sutures the skin, leaving small tampons at the sides. In bandaging, the knee is flexed a little. The longer the bandage is left on, the better is the result; five or six weeks if possible. The first time the bandage is changed, the sutures and tampons are removed. In two or two and one-half months the patients are able to go about on crutches. For the class of patients that come to the St. Petersburg hospital—women who have worked hard and must return to work—it is best to use some operative procedure. He thinks that in people over 40 or 50 years old, a resection is usually contra-indicated; such patients stand an amputation better. The ideal treatment for bone and joint tuberculosis, when possible, is the conservative; that is, at a special sanatorium, but it is necessary for the patient to remain there a long time.

Berliner klinische Wochenschrift

January 22, XLIX, No. 4, pp. 145-192

107 Experimental Research on Nephritis. C. Hirsch and W. Maschke.
108 Urethan in Pediatrics. (Verwendbarkeit des Urethans in der Kinderheilkunde.) F. Bertling.
109 Two Cases of Polycythemia. L. Kuttner.
110 Hypophysis Tumor. (Zur Kasuistik der Hypophysentumoren.) L. Kuttner.
111 Diagnostic Inoculation of Rabbits with Syphilitic Blood or Serum. (Gelungene Verimpfung von Blut, Blutserum und Sperma syphilitischer Menschen in die Hoden von Kaninchen.) P. Uhlenhuth and P. Mulzer.
112 Reinfection with Syphilis. (Beitrag zur Reinfectio syphilitica.) Schueller.
113 Differential Diagnosis of Pseudocholera Germs. (Differentialdiagnose der choleraähnlichen Vibrionen.) Baerthlein.
114 *Indications for Decapsulation of the Kidney. (Ueber Indikationen zur Decapsulation der Niere.) Lehmann.
115 Limits of Operability of Gastric Cancer. (Ueber die Grenzen der Operabilität des Magencarcinoms.) Federmann.
116 Industrial Affections of the Eye. (Krankheiten und Verletzungen des Sehorgans im Erwerbsleben.) O. Schnaudigel.
117 Official Disinfection. (Noch eine kurze Bemerkung über unser öffentliches Desinfektionsverfahren.) J. Ritter.
118 *Methyl Alcohol Poisonings in Hungary During 1909. (Ueber die Methylalkoholvergiftungen in Ungarn im Jahre 1909.) L. Levy.

114. **Indications for Decapsulation of the Kidney.**—Lehmann reports three cases of chronic nephritis in which great benefit was derived from decapsulation, although the nephritic process itself did not seem permanently influenced. The general health, however, was much improved. He regards it as a life-saving measure in most forms of oliguria or anuria, especially with uremia in the course of acute nephritis; in this case it may have a favorable influence on the nephritis itself. It is indicated for uremia with chronic nephritis only when the trouble is an acute exacerbation of the chronic disease and the kidneys are still functionally capable. He cites instances of the various types.

118. **Methyl Alcohol Poisoning in Hungary.**—In the spring of 1909 a number of fatalities following wakes and weddings attracted the attention of the authorities, and the source was traced to methyl alcohol in the liquor drunk. After seventy deaths in a brief period in different parts of Hungary, the use of methyl alcohol in drinks, drugs and perfumes was prohibited. The official chemist (Felletar) found the methyl alcohol in the blood or urine in cadavers months after burial; as late as six months in one case.

Centralblatt für die Grenzgebiete der Med. und Chir., Jena

December 21, XIV, Nos. 21-22, pp. 801-880. Last indexed Oct. 28, 1911, p. 1496

119 *Treatment of Facial and Spinal Accessory Paralysis. (Behandlung der Facialis- und Accessoriuslähmung.) O. Rothschild. Commenced in No. 14.
120 *Operative Treatment of Puerperal Infection. E. Venus. Commenced in No. 13.

December 28, No. 23, pp. 881-928

121 *Serous Meningitis. K. Weiss.
122 *Spontaneous Rupture of the Spleen During or as a Consequence of Typhoid. (Die Spontanrupturen der Milz im Verlauf und Gefolge des Typhus abdominalis.) E. Melchior. Commenced in No. 21.

119. **Treatment of Facial and Spinal Accessory Paralysis.**—Rothschild gives a collective summary of 188 works on this subject, remarking that operative treatment of facial and trapezius paralysis is still too recent for its value to be definitely determined as yet. He gives an illustration of the various methods of anastomosis, ascending and descending, total or partial, citing instances of each. In twenty-two of the thirty-three total cases he has compiled, the ascending total anastomosis was preferred. He tabulates the details of sixty-eight cases, including ten from American literature, giving the remote results in forty-six cases. In eight cases the outcome was complete restitution; in the majority the results were fair, and in only one instance was the operation an absolute failure. Even the cases with only mediocre results still show a tendency to progressive improvement. Pascale found that after two years the individual coordinate movements were under constantly better control. If there has been no spontaneous improvement in the year after the development of facial paralysis, Rothschild advises to liberate the facial nerve from adhesions or compression, if the trouble originated in middle-ear disease. If this fails, he advocates joining the facial with the hypoglossal nerve, severing the latter and implanting its central end in the side of the facial nerve, wrapping the point in Cargile membrane so that fibers growing out of the central stump of the hypoglossal nerve will not be able to reach the peripheral end. This is the simplest technic to restore the symmetry of the face and motor control of movements of the eye muscles, mastication and salivation. For paralysis of the spinal accessory, the combined muscle plastic operation and the free fascia graft seem to give equally good results, but the ease and simplicity of the latter technic commend it, he thinks, as far superior. He reports in detail a successful case from his own experience, the functional and cosmetic outcome with the free fascia graft being perfect. The patient can raise her arm vertically over her head without effort.

120. **Operative Treatment of Puerperal Infection.**—Venus reviews 521 articles on this subject from recent literature, giving the views of various authors and tabulating the details from various standpoints. He cites the details and outcome of 108 cases of hysterectomy done for puerperal infection, 66 supravaginal amputations, 120 vaginal hysterectomies, 10 partial hysterectomies, and 49 with the route unknown. Hysterectomy was done for puerperal peritonitis in 66 cases with 26 recoveries. The mortality in the 263 cases in which a laparotomy was done was 48.22 per cent. In 121 cases the veins were ligated for puerperal thrombophlebitis. On the basis of the experience thus reviewed he advocates hysterectomy within forty-eight hours for acute streptococcus endometritis with a stormy onset and collapse, especially after a criminal abortion, or with putrefying fetus or extensive injuries during labor, and when acute infection follows manual separation of the placenta. If there is a rigor or other signs of acute pyemia, the veins must be ligated in addition to removing the uterus, ligating both ovarian and middle iliac veins. An abscess in the uterus develops so slowly that success is possible even when the uterus is not removed until four or six weeks after the beginning of the infection. With puerperal peritonitis a laparotomy should be done without delay; rinsing out the abdominal cavity seems to do here more harm than good. With puerperal thrombophlebitis, ligation of the affected veins is indicated within forty-eight hours, excising them if possible with the septic uterus. In the subacute and chronic cases, he says, operate when certain of the diagnosis. The transperitoneal route is preferable, exposing the veins to ascertain the extent of the thrombosis. Slight metastatic disturbances are not a contraindication but serious metastatic involvement of the lungs, kidneys or eyes, testifies that the condition is beyond recovery. The material shows that many patients were saved by the operation who would have been inevitably lost without it. There is no doubt, he declares, that much is to be gained by more active and energetic procedures in severe puerperal infection.

121. **Serous Meningitis.**—Weiss reviews sixty-five articles on serous meningitis that have been published since Quincke's description in 1893 of the internal and external forms of serous meningitis. In some cases intercostal pains and tenderness of the spinous processes were observed with the more

usual symptoms. A striking feature is the great variability in the symptoms. The protracted course speaks against suppurative meningitis and the lack of herpes against the epidemic form. The syndrome may deceptively simulate a brain tumor. The pressure on the brain may be uneven, so that focal symptoms predominate. Goldstein has reported three cases in which the syndrome suggested a hypophysis tumor except the variability of the course, the lack of unmistakable focal symptoms, the changes in the skull, Oppenheim's symptom, the high tension in the cerebrospinal fluid, and especially the lack of symptoms showing perverted hypophysis functioning, in comparison to the symptoms indicating pressure on the brain. Treatment should be the same as for inflammation of any serous membrane. Ibrahim advocates hexamethylenamin, especially for children, Münzer advises ice, purgatives, calomel and iodids. Oppenheim has obtained good results with mercury and iodid. Lumbar puncture is useful both for diagnosis and treatment; Manasse found benefit from withdrawal of only 1.5 c.c. Some regard indiscriminate lumbar puncture as dangerous, Lecène advocates trephining, Beck puncture of the ventricle, as more rational and effectual; decompressive craniotomy is particularly useful when the affection is in the posterior cranial fossa. Babinski warns not to waste time with mercurial treatment, even with a positive Wassermann reaction. In some cases the lumbar puncture seemed to aggravate the condition and trephining became necessary. When it is desired to obtain considerable fluid for the diagnosis, the Bier constricting band has been applied to promote evacuation of the fluid. Curschmann applies ice to the periphery for this same purpose. The pressure in the cerebrospinal fluid is increased by these measures so that it flows out more readily.

122. **Spontaneous Rupture of the Spleen in Typhoid.**—Melchior has found fifty-six articles on this subject but only thirteen authentic cases on record. Signs of intraperitoneal hemorrhage should suggest spontaneous rupture, especially if the spleen is much enlarged, and it should be exposed at once and removed. Getting up too early is dangerous on this account if the spleen is much enlarged, especially if it enlarged very fast.

Correspondenz-Blatt für Schweizer Aerzte, Basel

January 20, XLII, No. 3, pp. 65-112

123 *Neurorecurrences After Salvarsan. (Ueber die Neuro-Recidive nach Salvarsan.) W. Düsekker. Commenced in No. 2.

123. **Neurorecurrences in Syphilis.**—At Jadassohn's clinic at Berne thirteen cases of the so-called neurorecurrences of syphilis after treatment with salvarsan have been observed in the last year. Düsekker is sure that the salvarsan has something to do with them, although they are undoubtedly of a syphilitic nature; their frequency since the introduction of salvarsan cannot be explained away on any other basis. The prognosis of these neurorecurrences seems to be favorable, especially if they are promptly detected and treated. The clinics at which a combined mercury and salvarsan technic is applied seem to have had less of these neurorecurrences than others. He urges all to keep a watch for them as neurorecurrences may develop later without the knowledge of the clinician who administered the salvarsan.

Deutsche medizinische Wochenschrift, Berlin

January 25, XXXVIII, No. 4, pp. 145-200

124 *Indications and Contra-Indications for Mountain Climate. (Ueber die Indikationen und Kontraindikationen des Höhenklimas.) C. Stäubli.

125 *Epidemic Paratyphoid Infections in Army Corps. (Darmkatarrhe und Paratyphusinfektionen im XIII—K. W.—Armeekorps.) H. Bofinger.

126 Symptomatology of New Growths in Distal Portion of Spinal Cord. (Zur Symptomatologie der Neubildungen am Conus und der Cauda equina.) L. Jacobsohn.

127 *Fever After Injection of Salvarsan. G. Stümpke.

128 *Retention of Arsenic after Intravenous Injection of Salvarsan. (Verweildauer des Arsens im tierischen Organismus nach intravenöser Einspritzung von Salvarsan.) H. Ritter.

129 *Pepsin in the Urine. (Klinisches über das Harnpepsin.) H. Strauss.

130 *The Cammidge Reaction and Microscopic Determination of Melting Point. (Cammidge-Reaktion und Schmelzpunktbestimmung unter dem Mikroskop.) H. Weber.

131 The Antitryptic Findings in Serum during Anaphylaxis. (Aenderung des antitryptischen Titers des Serums bei der Anaphylaxie.) S. Ruszuyak.

124. **Indications and Contra-Indications for Mountain Climate.**—Stäubli cites among other indications a defective development of the chest, and its musculature, convalescence after pneumonia, pleurisy and empyema, neuroses of all kinds, especially cardiac neuroses, anemic disturbances and persons with constitutionally weak hearts and with moderate weakness of the heart left from severe toxic and infectious processes. Naturally the mountains are absolutely contra-indicated in all heart affections in which the heart is already working with its reserve force. He does not regard age over 55 or 60 as a contra-indication; the atmospheric pressure is felt evenly on the tissues inside the body as well as on the exterior so that all that has to be taken into account is the extra demands made on the arteries by the climbing. He regards it as established that more red corpuscles and more hemoglobin are produced, although not to the extent formerly assumed. He compares it to the whip applied to a sleepy horse; once started up to better functioning the blood-producing apparatus keeps on afterward at a better gait. The mountains had better be avoided when the organism is no longer capable of a reaction, as in pernicious anemia, although he cites some instances of surprising benefit even in this; one patient was a man of 65 with only 23 per cent. hemoglobin and 1,350,000 reds. After four months at St. Moritz the hemoglobin had risen to 57 per cent. and the reds had nearly trebled. In the mountains there seems to be less tendency to the depositing of dead fat while the production of living matter is promoted; consequently a stay in the mountains is an excellent and harmless method of reducing obesity. He has had considerable favorable experience with diabetes, and urges further research on the influence of altitude on diabetes. The favorable action on nervous disturbances is well known, as also the most striking effect of all, that on asthma, especially the type with eosinophilia, which he calls the eosinophil diathesis. He adds that when everything else fails, a stay in the mountains may transform the metabolism and a cure result. He warns that persons on arriving are apt to be enticed to walk and climb beyond their strength at first and become weak and nervous, but a day or so of reclining will bring them out of this "adaptation depression," as he calls it.

125. **Epidemic of Paratyphoid.**—Bofinger reports a barracks epidemic of eighty-six cases of bowel trouble ranging from simple intestinal catarrh to a tedious typhoid-like illness or a long syndrome suggesting articular rheumatism or sepsis. In seventy-four cases paratyphoid bacilli were found in the stools, and in the others bacilli closely resembling them. This epidemic has impelled Bofinger to urge that army posts should have their special slaughterhouse as the best means to avoid paratyphoid and similar infections. Even when the meat is in good condition when the cattle are slaughtered, it may become contaminated before reaching the kitchen. The mere laying of an infected piece on a healthy piece of meat may infect the latter. Sausage casings may harbor the germs when the animals are healthy, and artificial casings are safer.

129. **Pepsin in the Urine from the Standpoint of Diagnosis.**—Strauss has examined the conditions in regard to the pepsin in the urine in twenty-three patients with carcinoma and twenty-two with non-cancerous apepsia. The results of his research demonstrate that too many factors are involved in the output of pepsin in the urine for it to have much specific diagnostic importance.

130. **The Cammidge Reaction.**—Weber describes the mechanism of the Cammidge reaction and states that it is a not to be underestimated sign of abnormal conditions in regard to pancreatic secretion.

Jahrbuch für Kinderheilkunde, Berlin

January, LXXV, No. 1, pp. 1-130

132 Spirometric Research on Children's Respiration. (Spirometrische Untersuchungen zur Pathologie und Pharmacologie der Atmung im Kindesalter.) R. Lederer and H. Vogt.

133 Stenosis and Hypertrophy of the Pylorus in Two Infants (Zwei Fälle von hypertrophischer Pylorusstenose beim Säugling.) T. Tanaka.

134 *Plastic Bronchitis. (Bronchitis plastica.) P. Schneider.

135 Salvarsan in Inherited Syphilis. (Erfahrungen mit Salvarsan bei Lues congenita.) E. Welde.

136 *Epidemiology and Early Diagnosis of Measles. (Zur Epidemiologie und Frühdiagnose der Masern.) P. Rohmer.

134. **Plastic Bronchitis.**—Schneider reports a case in a young boy with necropsy findings and chemical study of the substance secreted by the bronchi, and compares the findings with those in the few similar cases on record.

136. **Measles.**—Rohmer's experience with an epidemic of measles at the Cologne children's clinic demonstrated that healthy carriers kept up the contagion, so that isolation in an institution does not guarantee against infection of other inmates. Other facts observed indicate that the stage of the eruption is contagious to the last traces of the exanthem, but after desquamation begins there is no further contagion. The incubation stage is not free from manifestations; the temperature will often reveal that something is wrong before the catarrhal stage is reached. The average in fifty-five cases, known to be free from fever beforehand, was fever in six days before the eruption in 10 per cent.; five days in 30 per cent., and four days in 37 per cent.; three days in 30 per cent., preceding the appearance of Koplik's spots by from one to three days. The characteristic leukopenia was also evident from one to eight days before the eruption, averaging 4.4 days before the eruption and 3.3 days before the Koplik spots. Infection occurred in two cases five and six days before the eruption, but generally not before the second or third day. In two cases the exanthem did not develop until sixteen days after the contact.

Medizinische Klinik, Berlin

January 14, VIII, No. 2, pp. 47-90

137 *To Prevent Disability After Industrial Accidents. (Anpassung und Gewöhnung an Unfallsfolge.) A. Bum.
138 Dentition Disturbances. (Dentitionskrankheiten.) K. Hoffendahl.
139 Complications with Typhoid. (Komplikation bei Typhus abdominalis.) Schuster.
140 Experiences in Medicolegal Psychology. (Aus der forensisch-psychiatrischen Tagesgeschichte.) S. Placzek. Commenced in No. 1.
141 Stramonium Poisoning. (Stechapfelvergiftung mit anfänglich paralyseähnlichem Bilde.) B. Scherwinsky.
142 Treatment of Fowl Spirillosis. (Experimentelle Untersuchungen über die therapeutische Wirkung verschiedener Quecksilberpräparate bei der Spirochätenkrankheit der Hühner.) W. Kolle, M. Rothermundt and J. Dale.

137. **After the Industrial Accident.**—Bum discusses the remarkable ability displayed by many persons to adapt themselves to conditions after mutilation, but states that since the workmen's compensation legislation was enacted the injured workmen make comparatively little effort to adapt themselves to the new conditions. In treating an industrial accident it should never be forgotten that the hands and a firm balance in standing are the capital of the working man, and that the remote outcome in these respects should be kept constantly in mind in treating industrial injuries. The chief aim is to keep the man still able to pick up and hold firm his tools. The location of the cicatrix may be of prime importance for the man's trade. Especial effort should be made to retain or restore the thumb. Primary suture of tendons may insure good functioning later. He found serious contracture later in 82 per cent. of twenty-three patients whose fractured patella had been treated by suture. In future he intends to suture the patella with the knee bent at an angle of 120 degrees to counteract this tendency. Among other points brought out, he says that walking appliances have proved a disappointment to him and that he has returned to the principle of weight-bearing after the callus has formed, with the foot or other part in good position.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

January, XXXV, No. 1, pp. 1-124

143 Reliability of Obstetric Measurements of the Pelvis. (Der Wert einiger Beckenmasse.) F. C. T. van der Hoeven.
144 Corpus Luteum Precedes Corpus Hemorrhagicum. (Zur Frage der Entstehung des Corpus haemorrhagicum.) H. Hauswaldt.
145 Ultimate Outcome of Abdominal Hysterectomy for Cancer. I. (Ueber Dauerresultate bei der Operation des Uteruskarzinoms nach den abdominalen Methoden.) W. Busse.
146 Operability of Uterine Cancers. (Können wir hoffen, durch Erhöhung des Operationsprozents die absolute Leistung der abdominellen Totalexstirpation des karzinomatösen Uterus zu erhöhen?) B. Krönig.
147 Feeding and Care of New-Born Infants. (Neue Erfahrungen in der Technik der Ernährung sowie zur Physiologie und Pflege des Neugeborenen.) R. T. Jaschke.
148 Sclero-Edema of New-Born Infants. (Beitrag zum Sclerodema neonatorum.) E. Geiser.
149 Technic for Gynecologic Roentgenotherapy. A. Czyborra.

Münchener medizinische Wochenschrift

January 23, LIX, No. 4, pp. 177-232

150 *Epidemic Poliomyelitis with Bulbar Symptoms. (Bulbäre Form der epidemischen Kinderlähmung.) E. Müller.
151 *Treatment of Acid Intoxication. (Kausalischer Beitrag zur Therapie der Säurevergiftung.) F. Marchand.
152 *The Guaiac Test for Occult Blood. (Zur Technik des Nachweises von okkultem Blut mittels der Guajakreaktion.) H. Zoepritz.
153 *Contrast Staining of Formed Elements in the Urine. (Verfahren zur polychromen Färbung geformter Harnbestandteile.) A. Schott.
154 *Thrombosis and Internal Secretion. (Zur Aufklärung der Thrombosen nach gynäkologischen Operationen nebst einigen Bemerkungen über die Gerinnungen in der Plazenta und über die Wirkung von Myomextrakten.) G. Schickele.
155 *Injection of Blood or Serum for Hemorrhage and Anemia. (Ueber therapeutische Erfolge bei Blutungen, hämorrhagischer Diathese und perniziöser Anämie durch Injektion von Serum bezw. defibriniertem Blut Gesunder.) M. John.
156 Etiology of Impetigo and Eczematous Conjunctivitis. W. Pick.
157 Bacteriologic Examination of Uterine Secretion. (Zur Technik und Bedeutung der bakteriologischen Untersuchung des Uterussekrets in der Praxis.) M. Traugott.
158 *Fatal Hemiplegia After Injection of Salvarsan with Gumma in Spinal Cord. (Tödliche Hemiplegie nach Salvarsaneinspritzung bei Gumma des Rückenmarkes.) A. Hoffmann.
159 *Treatment of Anthrax. (Zur Behandlung des Milzbrandes.) C. Becker.
160 Serotherapy of Tetanus; Two Cases. (Tetanus traumaticus mit Antitoxin Höchst und Blutserum einer geheilten Tetanuskranken geheilt.) A. Wiedemann.
161 Fatal Anaphylaxis After Injection of Serum. (Serumtod infolge von Anaphylaxie?) J. Dreyfuss.
162 *Treatment of Cicatricial Deformity. (Zur Behandlung der Hautnarben.) O. Tibio.
163 Ten Years of the Medical Tribunal of Honor. (Das erste Jahrzehnt des preussischen Ehrengerichtshofes für Aerzte.) P. Kaestner.

150. **The Medulla Oblongata Form of Epidemic Poliomyelitis.**—Müller has encountered a number of cases in which the syndrome indicated that the poliomyelitis was confined to the medulla oblongata or localized predominantly here; the disease began with merely unilateral facial paralysis and febrile manifestations. He found the facial nerve involved in twenty-one of his 165 cases of recent poliomyelitis, and thinks that this would be found still oftener if sought for more carefully. The facial paralysis may be transient and may have subsided before the examination. Generally there were other bulbar and, finally, spinal symptoms, including paresis of the external ocular muscles, of the hypoglossal and motor trifacial nerve, disturbances in speech and swallowing or unilateral paralysis of the palate. He thinks that death is the result of the spinal extension of disturbances, paralysis of the intercostal muscles, of the accessory muscles of respiration, and then of the diaphragm. Although the prognosis is particularly grave in these descending spinal cases, yet complete recovery is possible as he shows by a recent example. The child was apparently moribund, with right facial paralysis and disturbances in swallowing, total flaccid paralysis of the limbs, paralysis of the abdominal and neck muscles, thrush and bronchitis, but the diaphragm was still working well. Six weeks later the child had entirely recovered except for some weakness. Müller has witnessed a number of instances like this, but only in small children. The typical febrile prodromes with hypersensitiveness and sweats were occasionally noted in the bulbar form. The hyperesthesia is an early and possibly fleeting symptom, but is so characteristic, in connection with the lack of the brain symptoms of meningitis, that Müller has frequently based his diagnosis on it alone, before any paralysis had developed. If the hyperesthesia is circumscribed—which is especially liable in incipient spinal cases—it may lead to an erroneous diagnosis. One child, for example, was brought in with the diagnosis of appendicitis, the early intestinal symptoms of poliomyelitis being accompanied by hyperesthesia in the right lower abdomen. The associated flaccid paresis of the legs had been overlooked both by the family and the hospital physician at first. In another case the child was sent in for "dislocation of the shoulder," when the trouble was acute poliomyelitis with hyperesthesia in the shoulder and incipient paralysis of the shoulder. Other signs of a spinal affection can generally be discovered, loss of tendon reflexes, defective muscle tone in certain areas, and weakness of the muscles of the extremities. In conclusion Müller urges compulsory declaration of all cases of poliomyelitis, epidemic or sporadic.

151. **Treatment of Acid Poisoning.**—The advantages of giving an alkali to neutralize acidosis, which are utilized in diabetic coma, have not been applied in treatment of other acid poisonings, at least to Marchand's knowledge, he says. He reports a case in which a young man was unconscious as the effect of drinking sulphuric acid. The throat and mouth were badly burned but the stomach did not seem to suffer very much as it had happened to be full at the time. The absorbed acid, however, had evidently attracted alkalis from the tissues to neutralize it, and this drain of alkali was manifested clinically in the deep unconsciousness, or so Marchand reasoned. The indication was therefore to supply an alkali, and he injected into a vein about 300 c.c. of a 5 per cent. solution of sodium carbonate. The patient roused immediately and asked for water. The urine voided was strongly alkaline and there was some diarrhea for a time but convalescence was prompt, impeded only by pneumonia from aspiration during the hours of coma. Transient thrombosis developed at the point where the injection had been made in the basilic vein; in future Marchand will make the injection in a peripheral vein as there seems to be a special danger of thrombosis with injection of an alkaline solution. He also describes a case of diabetes in a man of 38 whose mother and sister had died of the same disease. The diabetes had been kept under fair control in his case for ten years when it became aggravated and coma developed. About 300 c.c. of a 5 per cent. solution of sodium carbonate was injected into a vein in two doses at an interval of two and a half hours and the tendency to coma disappeared. There has been no recurrence and the patient was able to return to business, although still passing 15 gm. sugar on a diet of 28 gm. carbohydrates. He died nine months later. This case teaches that the acidity is the main factor in diabetic coma, and that it can be conquered by alkaline treatment notwithstanding the persistence of the oxybutyric acid and acetone.

152. **Sources of Error in Applying the Guaiac and Other Tests for Occult Blood.**—Zoeppritz says that sometimes a positive result may be obtained when a more concentrated extract of the fluid to be examined is taken. It must not be allowed to stand exposed to the air, as oxidizing processes may interfere with the test reaction. An important improvement in the technic is to apply the test to the fluid not in the test-tube but poured on filtering paper; even the slightest trace of a color reaction is thrown into relief by the white background. The fluid to be examined and the acetic acid should be in generous amounts. The top of the test-tubes and the area of the filter paper to be used should not be touched with the fingers, and the filter paper should be carefully tested; some papers and some turpentines give misleading reactions.

153. **Contrast Staining of Formed Elements in the Urine.**—Schott describes the technic in use at the university policlinic at Heidelberg and expatiates on the advantages of staining the elements in the urine. He uses two solutions which are durable and which are merely added to 10 c.c. of the urine to be examined—three drops of Solution I and six or eight drops of Solution II. Solution I is a 5 per cent. solution in distilled water of water-soluble anilin blue; Solution II is a 2½ per cent. solution of eosin in glycerin, with addition of 5 per cent. liquefied phenol. The urine treated with these stains keeps for days or weeks, the sediment retaining its stains although in time they are less distinct. For examination of tube-casts, the urine should be quite fresh as these delicate structures may be digested by the enzymes in the urine even within an hour.

154. **Thrombosis and Internal Secretion.**—Schickele presents arguments to sustain his assertion that static, mechanical factors are involved in the producton of thrombosis, and that there is nothing to date to prove the participation of an internal secretion.

155. **Therapeutic Injection of Serum or Defibrinated Blood for Hemorrhage or Anemia.**—John calls attention to his success in curing six patients with severe typhoid intestinal hemorrhage by injection of defibrinated blood; while he lost another patient who was treated with abundance of gelatin, injected subcutaneously and given by the mouth at the first sign of epistaxis suggesting a hemorrhagic tendency. From a vein in the arm of a healthy person he draws 30, 40 or 50 c.c. of blood directly into a glass vessel containing some glass beads, and then defibrinates by vigorously shaking the vessel. The defibrinated blood is then injected at once into the gluteal muscle or subcutaneously into the leg if the patient cannot change his position. He repeated the injection two or three times at two- or three-day intervals. He has been equally successful with the measure in a case of severe articular rheumatism with a hemorrhagic diathesis, and in a case of pernicious anemia. In the latter case he used serum alone; the patient, a woman of 38, was so improved by two injections that she refused another as she felt entirely well. Her hemoglobin percentage had dropped from 38 to 19, the whites from 7,600 to 4,100 and the reds from 2,200,000 to 600,000 during the month before the serum was injected. Six weeks afterward the hemoglobin had risen to 62 per cent., the reds to 3,500,000. Esch has reported similarly favorable experiences in two cases; he ascribes the benefit from the defibrinated blood or serum to a stimulating influence on the red-bone marrow from the alien blood. When it is difficult to obtain fresh blood, fresh horse serum might be used for the purpose, and John urges the necessity of never leaving this untried in severe uncontrollable hemorrhage. He refers to Ciuffini's research which seems to have demonstrated that heating gelatin to sterilize it deprives it of action on the coagulation process while a 10 per cent. solution of gelatin by the mouth or rectum displays little if any effect on the coagulation of the blood.

158. **Fatal Hemiplegia After Injection of Salvarsan.**—In the case reported the patient had contracted syphilis five years before spinal paraplegia developed. As the spirochetes had probably become resistant to mercury, which had been pushed in the interim, salvarsan was injected, nothing being discovered to suggest that the cardiovascular system was below par. A chill and fever followed the injection and the patient died the ninth day with signs of progressive heart weakness. Necropsy revealed minute changes in the arteries of the brain but there had been nothing to suggest the existence of these changes except possibly the frequent headaches, although this is a frequent symptom in early syphilis. The case warns, Hoffmann adds, of the necessity for special care in giving salvarsan when there is anything to suggest possible syphilitic changes in the vessels of the brain.

159. **Treatment of Anthrax.**—Becker advocates mild measures in treatment of anthrax, bed rest, covering the lesion with an alcohol dressing and keeping up the heart action with alcohol internally. Demarcation of the eschar is hastened by a boric acid salve. Cultivation of the bacillus from the blood is the best means for prognosis. The general condition and the temperature may be deceptive; in some of the fatal cases there was no fever. The prognosis is grave when the bacilli are found in the blood and absolutely unfavorable if they are present in large numbers. He knows of only three cases in the literature and two in his own experience in which the patients survived after the bacilli had been found in the blood; one of these two had been treated with specific serum, one with salvarsan. Once the bacilli are in the blood it is useless to excise the lesion. Of his forty-four patients, all recovered with one exception of those yielding negative bacteriologic findings, while the eleven with positive findings all died. Many of the others presented an extremely grave syndrome, but they were kept under the above conservative treatment. In case of laboratory infection, immediate surgical excision might be wise. He has had but a limited experience with serotherapy but that has been favorable.

162. **Treatment of Cicatricial Deformity.**—Thilo has accomplished much in the relief of cicatricial deformity or disfigurement by a simple course of treatment aiming to soften and loosen up the cicatricial tissue, as he describes in detail. In two cases of contracture of the leg or cicatricial binding down of the arm to the chest, he restored the use of the limbs. In other cases he rendered the scar less conspicuous; the same principles have also proved effectual in treatment of erysip-

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clas. Soaking the part in warm water is of no avail; the moist warmth must be applied continuously for weeks, and for this he packs the part with cotton and covers airtight with adhesive plaster. Under this pack the skin keeps constantly moist and warm. The cicatricial tissue is loosened from the bone by traction with strips of adhesive plaster, splints, passive and active movements and systematic massage. The massage is done at first through a tricot covering drawn on over the adhesive plaster dressing, but later on the cicatrix itself lubricated with sweet oil or powdered. The scar is rubbed down and smoothed off by massaging and rubbing with a linen cloth and massaging with sand and oil, avoiding the tender parts at first. He finally uses water instead of oil, and then lets the patient do the rubbing, using diluted glycerin (glycerin one part, water two parts). Before rubbing he has the part soaked for a few minutes in water at 50 F.

Wiener klinische Wochenschrift, Vienna

January 25, XXV, No. 4, pp. 147-190

164 Variable Hemolytic Properties of Streptococci. (Die Hämolyse der Streptokokken als variable Eigenschaft.) A. Vystavel.

165 Potassium Cyanid Poisoning. (Zur Pathologie der Zyankalivergiftung. Ein Beitrag zur Kenntnis der oxydierenden Zellfermente.) H. Raubitschek.

166 *Enlarging Therapeutic Field for Hexamethylenamin. (Ueber neue Anwendungsgebiete des Hexamethylentetramins auf Grund seiner Ausscheidung.) E. Zak. (Zur Anwendung des Hexamethylentetramin in der Dermatologie.) O. Sachs.

167 The Nature of the Wassermann Reaction. (Zum Wesen der Wassermannschen Reaktion.) R. Bauer.

168 Elimination and Retention of Salvarsan. (Die Ausscheidungs und Remanenzverhältnisse des Salvarsans in ihren Beziehungen zur Therapie.) K. Ullmann.

166. **Hexamethylenamin in Pneumonia, Herpes, Etc.**—Zak was impressed with the scanty bacteriologic findings in the rusty sputum of a pneumonia patient who had been given hexamethylenamin in treatment of a suppurative pyelitis. It seemed to show that the drug had been eliminated in the sputum and had practically sterilized it. He therefore administered the drug systematically to his bronchitis patients and then examined the sputum to determine the proportion eliminated in this way. He describes the various tests he applied, his findings confirming the assumption that the drug is eliminated in the saliva and bronchial secretions. This is the more remarkable as Falk's research has established that the majority of drugs given for therapeutic purposes do not pass into the bronchial secretion; methylene blue and traces of antipyrin alone were refound in the sputum. Zak states that heating hexamethylenamin enhances its disinfecting power; at 37 C. a 0.5 per cent. solution has as powerful a sterilizing action as a 2 per cent. solution at 17 C. The presence of albumin does not interfere with its action. Test-tube experiments showed that minute amounts of the drug added to sputum arrested its putrefaction. His experiments further indicated that the drug possibly passes into the eye, but he does not regard his tests as conclusive in this line. Another use for the hexamethylenamin is to arrest fermentation in the stomach content in case of stagnation from stenosis of the pylorus. A patient with a gastric ulcer took 0.5 gm. of the drug twice a day for four days and the eructations and stomach content became odorless. This patient complained, however, of transient burning in the stomach, but whether this was due to the drug or the ulcer it is impossible to say.

Sachs reports that he was able to detect formaldehyd in the blister fluid after administration of hexamethylenamin, from 4 to 6 gm. a day, in ten patients with herpes zoster, five with multiform erythema and in the crusts of two patients with impetigo. This suggests a possible use of the drug in skin diseases.

Zeitschrift für Urologie, Berlin

January, VI, No. 1, pp. 1-96

169 *Operative Treatment of Chronic Nephritis. (Zur Frage der chirurgische Behandlung der chronischen Nephritiden.) B. N. Cholzow.

170 Local Treatment and Balneotherapy in Sexual Neurasthenia. (Die sexuelle Neurasthenie.) M. Porosz.

171 The Prostatic Secretion. (Weitere Beitrage zur Kenntnis der Prostatakörner.) E. Björling.

172 Determination of Amount of Residual Urine. (Zur Bestimmung der Residualharnmenge.) C. Adrian.

169. **The Surgical Treatment of Chronic Nephritis.**—Cholzow discusses the influence of decapsulation and of nephrotomy in chronic nephritis, and reports three cases of his own. Edebohls reported from his experience with 102 cases that thirty-nine of the patients died, ten within two weeks after the operation; of the fifty-three who are alive, more than five years after the operation, eleven are improved, thirty-three entirely cured and six no better. Guiteras, who has done perhaps the most work in this line, reports in 120 cases, 16 per cent. recoveries, 40 per cent. improved; 11 per cent. with a negative result, and 33 per cent. of the patients died after a longer or shorter period. There are two reasons for a favorable influence from decapsulation: (1) the intrarenal pressure is lowered and the circulation improved; (2) the parenchyma of the kidney comes in contact with the perirenal fat and grows to it, with formation of new connective tissue which may be unusually rich in blood vessels, and these anastomose with the vessels in the kidney parenchyma so that there is a better blood supply. Accordingly the improvement or cure of the kidney disease is promoted by this supplementary circulation and irrigation of the kidney. The kidneys from patients who died some time after a decapsulation have shown either a network of new-formed blood-vessels or, and this is the more usual, a solid capsule exceptionally poorly supplied with blood-vessels. Decapsulation should not be applied in edema when there is insufficiency of the heart, nor in a chronic case of long standing without general disturbance. Good results have been reported from decapsulation in hemorrhagic nephritis, and when there has been severe pain. Cholzow did a nephrotomy in his first case and a decapsulation in the other two cases. The results were the same and good. He thinks that a brighter horizon is opening for operative treatment of nephritis. In view of the relative harmlessness of the operation under spinal anesthesia, he believes that it may prove possible to broaden the indications and apply decapsulation not only when there is great increase in the intrarenal pressure, manifested by anuria, hematuria and pain, but also in moderate nephritis with more or less impairment of the general health and pathologic urine. As a rule, the decapsulation should be done on both kidneys, either at the same time or with a few days' interval. Wrapping the decapsulated kidney in omentum ensures ample circulation, but one of his cases shows that traction on the omentum later may cause pain. It might be wise to avert this by slitting the omentum in the first place.

Zentralblatt für Chirurgie, Leipsic

January 27, XXXIX, No. 4, pp. 105-136

173 *Motor Insufficiency of the Stomach of Gonorrheal Origin. (Motorische Insuffizienz des Magens auf der Basis von Perigastritiden gonorrhoischer Provenienz.) I. I. Grekow.

173. **Motor Gastric Insufficiency of Gonorrheal Origin.**—Grekow has encountered a number of cases of perigastritis in which the infection originated in the genital organs, of gonorrheal or other nature. The perigastritis caused adhesions with spasm of the pylorus or hypertrophy, and dilatation of the stomach in consequence. The pylorus may become occluded by adhesions from without or by reflex spastic constriction. In either case the stomach shows evidences of great motor insufficiency with hypertrophy of the pylorus and adhesions in its vicinity, with no palpation findings to suggest gastric ulcer or gall-stones, but a history of gonorrhea at some time and signs of an old diffuse peritonitis in the upper segment of the abdominal cavity. He has encountered a number of such cases, and reports two in girls of 18 and 22; the diagnosis was confirmed by the adhesions between the adnexa and the omentum and adhesions in the upper abdomen, and the absence of morbid findings in the stomach and appendix. In one of the cases reported the patient began to vomit constantly after the gonorrheal genital affection had lasted for some time. The vomiting persisted for a month, with albuminuria, constipation and intense thirst. At the laparotomy the pylorus was found hard and surrounded by fine, flat, soft adhesions binding it down to the hepatoduodenal ligament and gall-bladder and pulling the right end of

the stomach upward and twisting it, with the duodenum. After separating the adhesions with the fingers, the stomach and duodenum righted themselves and the abdomen was sutured without further ado. The vomiting ceased at once and all the pains, but the convalescence was slow as the patient had been so debilitated.

Zentralblatt für Gynäkologie, Leipsic

January 27, XXXVI, No. 4, pp. 109-128

174 *Attempted Abortion in Absence of Pregnancy. (Tentamen abortus provocandi deficiente graviditate.) F. v. Neugebauer.

175 Eclampsia Liver Without Clinical Symptoms. (Eklampsieleber unter dem Bilde der Muskatnussleber bei Fehlen aller klinischen Symptome.) P. Heinrichsdorff.

176 *Extra-Uterine Pregnancy at Term. (Fall von ausgetragener Extra-uterin-Gravidität.) S. Paskiewicz.

174. **Attempted Abortion in Absence of Pregnancy.**—Neugebauer reviews the literature on criminal abortion, remarking that the number of criminal abortions is increasing to such an extent that he does not think that 80 per cent, is too high an estimate of their frequency. He adds that he has never seen a compilation of cases in which the assumed pregnancy did not exist, but he has found about fifteen cases on record in which this was the case. Five of the women died. He cites four cases further in which the abortion was attempted and the pregnancy was extra-uterine. He asks to have data in regard to cases of attempted abortion in the absence of pregnancy sent to him, as he is compiling a large work in which he wishes to incorporate data in this line. His address is F. von Neugebauer, Warsaw, Poland.

176. **Extra-Uterine Pregnancy at Term.**—Paskiewicz reports a case and summarizes a number published in Russian by twenty-three authors in which the pregnancy was in the last half. One living female child was delivered, weighing 3,130 gm., a microcephalus. In his case there were three severe hemorrhages during the course of the pregnancy; the fetal heart sounds were audible when the woman entered the clinic at the eighth month and if the laparotomy had been accepted then the fetus might have been saved. It died soon after and was found macerated at term, the woman dying soon after from peritonitis.

Zentralblatt für innere Medizin, Leipsic

January 27, XXXIII, No. 4, pp. 77-100

177 Grinding Function of the Stomach and Intestines. (Leistet der Verdauungstraktus mechanische Zerkleinerungsarbeit?) Arnold.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 18, XXXIII, No. 8, pp. 73-80

178 *Spinal Anesthesia in Treatment of Epilepsy. (Epilessia e rachianestesia.) G. Giacomelli.

January 23, No. 10, pp. 97-104

179 Typhoid with Unusual Symptoms. (Infezione eberthiana con speciale sintomatologia.) E. Giovannini.

178. **Spinal Anesthesia in Treatment of Epilepsy.**—Giacomelli operated on an epileptic young man for an inguinal hernia under spinal anesthesia, and was surprised to learn that during the two years since the young man has had no seizures, although previously they had recurred at intervals of ten or fifteen days during the preceding nine years. Encouraged by this experience, Giacomelli applied spinal anesthesia systematically in treatment of epileptics and reports great improvement in every instance. He urges others to give this method a trial as his experience in this line is limited, having had only four epileptics in his charge. In the other three cases the epilepsy was on a basis of degeneracy which renders a cure practically impossible. One of the epileptics who had previously been a helpless imbecile, afterward became self-supporting as a petty peddler.

Policlinico, Rome

January 21, XIX, No. 4, pp. 113-148

180 Brachial Paralysis. (Sulle paralisi del plesso brachiale.) C. Piantoni.

January, Medical Section No. 1, pp. 1-48

181 Muscle Grafting in Eyes of Monkeys. (Le teorie sul meccanismo dei movimenti associati di convergenza e di lateralita, studiate in relazione ai risultati, ottenuti da esperimenti con trapianti di muscoli oculari, fatti su scimmie.) A. Marina.

182 The Circulation in Senile Arteriosclerosis. (Studio dell'equilibrio circolatorio nell'aterosclerosi senile.) E. Morandi.

183 *Tuberculous Process in Heart. (Contributo alla casistica della tubercolosi del cuore.) R. Pellegrini.

184 Spontaneous Rupture of the Heart. (Caso di cardiorexsi spontanea.) R. Pellegrini.

183. **Tuberculous Lesion of the Heart.**—Pellegrini says that 120 cases are on record but that only fifty-three were examined for bacilli, with positive findings in forty-five. He reports a case in which tubercles were found in the endocardium at necropsy of an infant with miliary tuberculosis. He also reports a tuberculous valvular lesion in a tuberculous man of 50; the tubercle was implanted in the middle of the semilunar valve.

Brazil-Medico, Rio de Janeiro

January 8, XXVI, No. 2, pp. 11-20

185 *Dourine in Brazil. (Sobre a natureza da epizootia dos equidas conhecida no Ceara pelo nome de mofo.) M. Saboia.

186 Local Manifestations of Anaphylaxis in Course of Pasteur Treatment of Rabies. (Manifestaçoes locaes de anaphylaxia no curso da vaccinaçoa anti-rabica.) E. Marques.

185. **Dourine in Brazil.**—Saboia states that he has succeeded in isolating from sick horses a trypanosoma which is apparently the *Trypanosoma equiperdum* of dourine. The epizootic has been known for years in certain districts in Brazil and the syndrome resembles in every particular that known as dourine in other countries.

Semana Medica, Buenos Aires

January 4, XIX, No. 1, pp. 1-48

187 Two Cases of Cancer of the Pancreas. J. R. Goyena.

188 The Psychology of Children. (Una obra de psicologia infantil.) J. Ingegnieros.

Ugeskrift for Læger, Copenhagen

January 18, LXXIV, No. 3, pp. 89-120

189 Some Questions in Accident Insurance. (Behandlingsinvaliditet og mangelfuI Attestudstedelse ved Ulykkesforsikringssager.) I. Collin.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

MANUAL OF PRACTICAL PHYSIOLOGY. Designed for the Physiological Laboratory Course in the Curriculum of the American Association of Medical Colleges. By John C. Hemmeter, M.D., Ph.D., LL.D., Professor of Physiology in the University of Maryland, Baltimore. Cloth. Price, $2.50 net. Pp. 223, with 55 illustrations. Philadelphia: P. Blakiston's Son & Co., 1912.

PHARMACEUTICAL BACTERIOLOGY. With Special Reference to Disinfection and Sterilisation. By Albert Schneider, M.D., Ph.D., Professor of Pharmacognosy, Histology and Bacteriology, California College of Pharmacy. Cloth. Price, $2 net. Pp. 238, with 86 illustrations. Philadelphia: P. Blakiston's Son & Co., 1912.

HEALTH AND MEDICAL INSPECTION OF SCHOOL CHILDREN. By Walter S. Cornell, M.D., Director of Medical Inspection of Public Schools, Philadelphia. Cloth. Price, $3. Pp. 414, with 200 illustrations. Philadelphia: F. A. Davis Company, 1912.

MOTIVE-FORCE AND MOTIVATION-TRACKS. A Research in Will Psychology. By E. Boyd Barrett, S. J., Doctor of Philosophy, Superior Institute, Louvain. Cloth. Price, $2.50. Pp. 225. New York: Longmans, Green & Co., 1911.

NINETEENTH ANNUAL REPORT ON THE BIRTHS, MARRIAGES, DIVORCES AND DEATHS IN THE STATE OF MAINE FOR 1910. Cloth. Pp. 192. Waterville Sentinel Publishing Company, 1911.

COAL-TAR COLORS USED IN FOOD PRODUCTS. By Bernhard C. Hesse, Ph.D. Paper. United States Department of Agriculture, Bureau of Chemistry, Bulletin No. 147. 1912.

TRANSACTIONS OF THE SEVENTEENTH ANNUAL MEETING OF THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY. Cloth. Pp. 538. Published by the Society, 1911.

PROCEEDINGS OF THE FIFTH ANNUAL MEETING OF THE ASSOCIATION OF LIFE INSURANCE PRESIDENTS. Paper. New York: Assn. of Life Insurance Presidents, 1 Madison Avenue, 1911.

TRANSACTIONS OF THE NATIONAL ASSOCIATION FOR THE STUDY OF EPILEPSY AND THE CARE AND TREATMENT OF EPILEPTICS. Tenth Annual Meeting, Volume 8. Paper. 1911.

THE LUTE OF LIFE. By James Newton Matthews. Edited by Walter Hurt. Cloth. Price, $1.50. Pp. 348. Cincinnati: Horton & Co., Publishers, 1911.

BELLEVUE AND ALLIED HOSPITALS, CITY OF NEW YORK. General Description and Annual Report of the Tuberculosis Clinic. Paper. 1910.

PUBLICATIONS OF THE UNITED STATES PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE. Paper. 1912.

YEAR-BOOK OF THE PROTESTANT ORPHAN ASYLUM OF DETROIT, MICH. Paper. 1911.

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